

**EPA Superfund
Record of Decision:**

**SAN FERNANDO VALLEY (AREA 1)
EPA ID: CAD980894893
OU 02
NORTH HOLLYWOOD, CA
09/24/1987**

NO ACTION
CONTAINMENT OF THE PLUME
EXTRACTION AND DISPOSAL
EXTRACTION AND TREATMENT
EXTRACTION AND BLENDING.

INITIAL CONSIDERATION OF THE APPROACHES THAT COULD BE USED AT THE NORTH HOLLYWOOD-BURBANK WELL FIELD RESULTED IN THE DECISION TO UTILIZE EXTRACTION. THE NO ACTION ALTERNATIVE WAS ELIMINATED FROM CONSIDERATION BECAUSE IT WOULD NOT MEET THE OBJECTIVE OF THE OPERABLE UNIT; THE CONTAMINATION PLUMES WOULD CONTINUE TO MIGRATE DOWNGRAIDENT, RENDERING ADDITIONAL WELLS UNUSEABLE. THE CONTAINMENT ALTERNATIVE WAS NOT GIVEN FURTHER CONSIDERATION BECAUSE IT WAS INFEASIBLE DUE TO THE GREAT AREAL EXTENT OF THE PLUMES AND THE DEPTH TO THE WATER TABLE (APPROXIMATELY 200 FEET).

EXTRACTION IS CONSIDERED NECESSARY BECAUSE IT WILL PRESERVE A VALUABLE NATURAL RESOURCE, CLEAN WATER, BY PREVENTING THE LOSS OF ADDITIONAL WELLS TO CONTAMINATION. ONCE EXTRACTED, THE GROUNDWATER MAY BE DISPOSED OF, BLENDED WITH UNCONTAMINATED WATER, OR TREATED. THESE THREE OPTIONS ARE DISCUSSED BELOW.

THE DISPOSAL OPTION WAS ELIMINATED FROM CONSIDERATION BECAUSE IT WOULD CONSTITUTE THE LOSS OF WATER SUPPLY AND BECAUSE OF THE POSSIBLE EXPENSE INVOLVED IN DISPOSING OF THE WATER. DWP WOULD HAVE TO REPLACE THE PUMPED GROUNDWATER WITH ALTERNATE WATER SUPPLIES, WHICH ARE NOT ASSURED DURING TIMES OF DROUGHT. THE GROUNDWATER COULD BE DISCHARGED DIRECTLY INTO SEWERS OR STORM DRAINS IF CONTAMINATION LEVELS ARE LOW. SHOULD CONTAMINATION LEVELS EXCEED LIMITS SET BY THE LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD AND THE LOS ANGELES COUNTY SANITATION DISTRICT, WHO ARE RESPONSIBLE FOR PERMITTING SUCH DISCHARGE, HOWEVER, DISPOSAL WOULD REQUIRE PRETREATMENT OR THE USE OF AN APPROVED HAZARDOUS WASTE FACILITY, EITHER OF WHICH WOULD BE EXPENSIVE.

BLENDING OF CONTAMINATED WATER WITH UNCONTAMINATED SUPPLIES WAS ALSO REMOVED FROM CONSIDERATION. THIS IS BECAUSE ADEQUATE SUPPLIES OF UNCONTAMINATED WATER MAY NOT ALWAYS BE AVAILABLE WITH WHICH TO BLEND THE CONTAMINATED SUPPLIES. SHOULD CONTAMINANT LEVELS IN THE WELL WATER EXCEED APPROXIMATELY 40 PPB, THE QUANTITY OF BLENDING WATER WILL EXCEED THE AVAILABLE SUPPLY OF UNCONTAMINATED WATER OR THE HYDRAULIC CAPACITY OF THE COLLECTION SYSTEM.

THE THIRD OPTION, TREATMENT OF THE EXTRACTED GROUNDWATER, MEETS THE OBJECTIVE OF THE OPERABLE UNIT AND PRESERVES THE WATER RESOURCE. IT WAS THEREFORE DECIDED TO EXTRACT GROUNDWATER FROM THE CONTAMINATED PLUME AT A RATE THAT WOULD ARREST THE MIGRATION OF THE PLUME, TREAT THE WATER AND DISTRIBUTE THE TREATED WATER TO DWP CUSTOMERS.

5.3 DETAILED ALTERNATIVE EVALUATION

THE THREE ALTERNATIVES THAT REMAINED FOR CONSIDERATION WERE SUBJECTED TO DETAILED EVALUATION. THESE ALTERNATIVES ARE LISTED BELOW:

EXTRACTION AND TREATMENT BY AERATION
EXTRACTION AND TREATMENT BY GRANULAR ACTIVATED CARBON (GAC)
EXTRACTION AND TREATMENT BY AERATION COMBINED WITH VAPOR-PHASE GAC.

THIS SECTION DESCRIBES EACH OF THE ALTERNATIVES AND PRESENTS AN EVALUATION OF EACH ON THE BASIS OF COST, TECHNICAL CONCERNS, PUBLIC HEALTH CONCERNS, AND ENVIRONMENTAL IMPACTS. BECAUSE EXTRACTION OF THE GROUNDWATER AND CONVEYANCE TO THE TREATMENT PLANT IS A COMPONENT OF EACH ALTERNATIVE, AND BECAUSE THIS COMPONENT CONSTITUTES THE MAJORITY OF THE EXPENSE FOR EACH ALTERNATIVE, THE EXTRACTION AND CONVEYANCE PLAN AND COSTS ARE PRESENTED FIRST.

5.3.1 EXTRACTION AND GROUNDWATER CONVEYANCE

COMPUTER-AIDED MODELING OF THE HYDROGEOLOGY OF THE NORTH HOLLYWOOD AREA INDICATED THAT EIGHT EXTRACTION WELLS WOULD BE SUFFICIENT TO CREATE A DRAWDOWN ZONE TOWARD WHICH THE CONTAMINATED GROUNDWATER WOULD FLOW, THUS PREVENTING OFFSITE MIGRATION OF THE PLUMES. THE MODELING USED A TRANSMISSIVITY VALUE OF 20,000 GPD/FT., BASED ON AN AQUIFER TEST PERFORMED AT NORTH HOLLYWOOD WELL NO. 5, AND A STORAGE COEFFICIENT OF 0.03, ASSUMING UNCONFINED AQUIFER CONDITIONS. TRANSMISSIVITY AND THE STORAGE COEFFICIENT WERE ASSUMED TO BE CONSTANT OVER THE ENTIRE WELL FIELD. THE ANALYSIS DETERMINED THE DRAWDOWN ZONE THAT WOULD BE CREATED AFTER EACH OF THE EIGHT

EXTRACTION WELLS WAS PUMPED AT A RATE OF 300 GALLONS PER MINUTE OVER A PERIOD OF 180 DAYS. FOR SEVERAL SETS OF CONDITIONS AND SEVERAL ARRANGEMENTS OF PUMPING WELLS, THE MODEL COMPUTED THE GROUNDWATER FLOW GRADIENT THAT WOULD RESULT FROM THE COMBINED EFFECTS OF PUMPING-INDUCED AND NATURAL GROUNDWATER FLOW GRADIENTS.

THE MODELING REVEALED THAT THE EXACT LOCATION OF EACH OF THE EIGHT WELLS WAS UNIMPORTANT AS LONG AS THEY ARE SPACED SOMEWHAT EVENLY ACROSS THE CONTAMINATED AREA AND ARRANGED APPROXIMATELY PERPENDICULAR TO REGIONAL GROUNDWATER FLOW, WHICH IS TOWARD THE SOUTHEAST. AN ARRANGEMENT WAS THEN DEVELOPED WHEREBY THE WELLS COULD BE SITUATED WITHIN AN EXISTING DWP POWERLINE RIGHT-OF-WAY.

COSTS PRESENTED FOR THE WELLS INCLUDE DRILLING AND CASING, AS WELL AS EQUIPPING EACH WITH A SUBMERSIBLE PUMP CAPABLE OF PROVIDING THE NECESSARY LIFT TO TRANSPORT 250 GALLONS PER MINUTE TO THE SURFACE AND THROUGH THE COLLECTION PIPELINE TO THE POINT OF TREATMENT. THE ARRAY OF WELLS WILL PRODUCE A TOTAL OF 2,000 GALLONS PER MINUTE AND THE COMBINED SYSTEM OF PUMPS WILL LIFT THE GROUNDWATER A TOTAL OF ABOUT 400 FEET, INCLUDING PIPE FRICTION LOSSES.

ONCE EXTRACTED, THE GROUNDWATER WILL BE CONVEYED TO THE TREATMENT SITE. ON THE BASIS OF HYDRAULIC AND ROUTING STUDIES, IT WAS DETERMINED THAT A COLLECTION PIPELINE CONSISTING OF APPROXIMATELY 11,000 FEET OF 12-INCH STEEL PIPE CONSTRUCTED THROUGH PORTIONS OF DWP PROPERTIES AND UNDER DEDICATED STREETS WOULD BE ADEQUATE.

THE COSTS OF BUILDING, OPERATING, AND MAINTAINING THE EXTRACTION AND CONVEYANCE SYSTEM ARE PROVIDED BELOW. ALSO, THE PRESENT WORTH OF EXTRACTION AND CONVEYANCE IS PRESENTED FOR COMPARISON WITH THOSE OF THE THREE FINAL ALTERNATIVES ON TABLE 5-1.

CAPITAL COSTS FOR EXTRACTION AND CONVEYANCE

EXTRACTION WELLS	\$ 300,000
INLET LINE	1,091,044
OUTLET LINE	72,202
SUBTOTAL	\$ 1,463,246

CONTINGENCIES (20%)	292,649
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TOTAL	\$ 1,755,895
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ANNUALIZED CAPITAL COST (15 YR., 10%)	\$ 230,854
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CONTINUED OPERATIONS COSTS

ANNUAL	
ENERGY	\$ 151,300
LABOR	\$ 5,000
CONTINGENCIES (30%)	\$ -0-
TOTAL	\$ 156,300

PRESENT WORTH (15 YR., 10%)	\$ 1,188,830
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TOTAL COST

ANNUAL	\$ 387,154
PER 1000 GALLONS	\$ 0,368
PRESENT WORTH	\$ 2,944,725.

5.2.2 SCREENING OF TREATMENT TECHNOLOGIES

THE NATIONAL OIL AND HAZARDOUS SUBSTANCES CONTINGENCY PLAN (NCP) STATES THAT A REASONABLE NUMBER OF ALTERNATIVES MUST BE DEVELOPED FOR REMEDIAL ACTION ACTIVITIES. EPA CURRENTLY CONSIDERS A RANGE OF TREATMENT LEVELS WHEN EVALUATING ALTERNATIVES. IN THIS CASE THE APPLICABLE TECHNOLOGIES ARE ALL CAPABLE OF OPERATING THROUGHOUT THE TREATMENT RANGE. THEREFORE, THE INITIAL SCREENING STAGES EVALUATED VARIOUS TECHNOLOGIES, USING CLEANUP TO THE STATE ACTION LEVEL

OR MCL FOR COST COMPARISON PURPOSES.

THE FOLLOWING FIVE METHODS WERE CONSIDERED FOR TREATING THE EXTRACTED GROUNDWATER:

AERATION
GRANULAR ACTIVATED CARBON (GAC)
AERATION COMBINED WITH VAPOR-PHASE GAC
SELECTIVE RESIN ADSORPTION
ULTRAVIOLET IRRADIATION/OZONATION.

OF THESE FIVE, TWO TREATMENT METHODS WERE REJECTED FOR REASONS DISCUSSED BELOW, AND THREE TREATMENT METHODS BECAME COMPONENTS OF THE ALTERNATIVES DEVELOPED FOR DETAILED EVALUATION (SEE SECTION 5.3).

THE SELECTIVE RESIN ADSORPTION TREATMENT METHOD WAS ELIMINATED FROM CONSIDERATION ON THE BASIS OF COST AND EFFECTIVENESS. THIS IS A MECHANISM BY WHICH CONTAMINANTS ARE REMOVED FROM WATER BY ADSORPTION ON SYNTHETIC RESIN, WHICH THE WATER PASSES OVER. THE COST OF THE RESIN IS ORDERS OF MAGNITUDE GREATER THAN THE COST FOR CARBON, WHICH IS USED IN A SIMILAR METHOD (GAC), DISCUSSED IN DETAIL IN SECTION 5.3.3. ADDITIONALLY, THE DISPOSAL OF SPENT RESIN IS EXPENSIVE. SPENT RESIN MUST BE TRANSPORTED TO AND DISPOSED OF IN AN APPROVED HAZARDOUS-WASTE DISPOSAL FACILITY, AT A RATE OF SEVERAL DOLLARS PER POUND. ALSO, THE APPLICABILITY OF THIS TECHNIQUE TO VOLATILE-ORGANICS REMOVAL HAS NOT BEEN DEMONSTRATED; THE PROCESS IS PRESENTLY LIMITED TO SMALL-SCALE TREATMENT OF ELECTRONIC CIRCUIT BOARD PROCESSING WATER AND PHARMACEUTICAL MANUFACTURING. BECAUSE IT IS AN UNPROVEN TECHNOLOGY, IT WAS NOT CONSIDERED SUITABLE FOR THIS OPERABLE UNIT.

THE ULTRAVIOLET IRRADIATION/OZONATION TREATMENT TECHNIQUE WAS ALSO REJECTED DUE TO EXPENSE AND EFFECTIVENESS. IN THIS METHOD, VOLATILE ORGANIC COMPOUNDS IN THE PUMPED GROUNDWATER ARE BROKEN DOWN BY OZONATION. THE EFFICIENCY OF THE PROCESS IS ENHANCED BY IRRADIATION OF THE INFLUENT WITH ULTRAVIOLET LIGHT. DUE TO THE CORROSIVE NATURE OF THE GAS, MUCH OF THE PROCESS HARDWARE MUST BE OZONE RESISTANT, NECESSITATING HIGH CAPITAL COSTS. LIKE SELECTIVE RESIN ADSORPTION, THIS TECHNOLOGY IS UNPROVEN FOR THIS APPLICATION. ULTRAVIOLET IRRADIATION/OZONATION IS CURRENTLY IN USE FOR DISINFECTING WATER, BUT IT IS NOT KNOWN WHETHER THE METHOD IS EFFECTIVE IN OXIDIZING TCE AND PCE. SINCE IT WOULD REQUIRE A LENGTHY PILOT PROGRAM, THE TECHNIQUE IS NOT APPROPRIATE FOR A FAST-TRACK ACTION.

5.3.2 EVALUATION OF TREATMENT ALTERNATIVES

EXTRACTION AND TREATMENT BY AERATION

THIS IS A METHOD WHEREBY VOLATILE ORGANIC COMPOUNDS (VOCs) ARE REMOVED FROM GROUNDWATER BY VOLATILIZATION AT THE AIR-WATER INTERFACE. THE PUMPED GROUNDWATER IS RUN THROUGH A VERTICAL COLUMN CONTAINING A PACKING MEDIUM. THE MEDIUM PROVIDES GREAT SURFACE AREA OVER WHICH A COUNTERCURRENT FLOW OF AIR IS INTRODUCED. THE CONTAMINANT IS TRANSFERRED FROM THE WATER TO THE AIR AND SUBSEQUENTLY REMOVED. THE EFFICIENCY OF THE PROCESS IS DEPENDENT ON THE NATURE OF THE CONTAMINANT, ITS INFLUENT CONCENTRATION, THE RATE OF AIR FLOW, AND THE AVAILABLE SURFACE AREA AFFORDED BY THE PACKING MATERIAL. FOR TCE AND PCE, REMOVAL EFFICIENCIES CAN EXCEED 99 PERCENT. AERATION IS A PROVEN METHOD, COMMONLY USED FOR TREATING GROUNDWATER.

THIS ALTERNATIVE HAS TWO DRAWBACKS WITH RESPECT TO PUBLIC HEALTH AND THE ENVIRONMENT. THERE IS THE POSSIBILITY OF LOW-LEVEL, LONG-TERM CANCER RISK DUE TO THE RELEASE OF VOLATILIZED CONTAMINANTS INTO THE AIR. THIS RELEASE OF CONTAMINANTS ALSO CONTRIBUTES TO AIR QUALITY DEGRADATION.

THE FOLLOWING COSTS CORRESPOND TO A FACILITY CONSISTING OF A SINGLE AERATION COLUMN SHELL 12.0 FEET IN DIAMETER AND 48.0 FEET IN HEIGHT, A PACKING DEPTH OF APPROXIMATELY 20.2 FEET, COLUMN PAD AND SUPPORTING STRUCTURE, 15-HP BLOWER AND INFLUENT PUMP, DEMISTER, DEHUMIDIFIER, AND RELATED APPURTENANCES. THESE COSTS WERE DEVELOPED WITH THE ASSUMPTION OF AN EXTRACTION FLOW RATE OF 2,000 GALLONS PER MINUTE, TREATMENT TO STATE ACTION LEVELS (MCL'S), AND MAXIMUM EXPECTED INFLUENT TCE AND PCE CONCENTRATIONS OF 650 AND 100 PPB, RESPECTIVELY. FOR COMPARISON WITH THE OTHER TWO ALTERNATIVES, CAPITAL COSTS AND ANNUAL CONTINUED OPERATIONS COSTS ARE PROVIDED THAT DO NOT INCLUDE EXTRACTION AND CONVEYANCE. THE TOTAL COST AND PRESENT WORTH, HOWEVER, REFER TO THE ENTIRE SYSTEM, INCLUDING EXTRACTION, CONVEYANCE, AND TREATMENT.

	LOW	HIGH
CAPITAL COSTS		
TREATMENT PLANT	\$ 116,500	\$ 247,000
CONTINGENCIES	10,000	30,000
TOTAL	126,500	\$ 277,000

ANNUAL CONTINUED OPERATION COST (TREATMENT PLANT)

POWER	8,200	8,200
CHEMICALS FOR BIOFOULING AND CORROSION	37,000	37,000
MAINTENANCE	5,000	10,000
TOTAL	50,200	55,200

TOTAL COST (INCLUDING EXTRACTION AND CONVEYANCE)

ANNUAL	\$ 453,985	\$ 478,772
PER 1000 GALLONS	0,432	0,455

PRESENT WORTH (15 YR., 10%)

(INCLUDING EXTRACTION AND CONVEYANCE)

\$3,453,050	\$3,641,581.
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EXTRACTION AND TREATMENT BY GRANULAR ACTIVATED CARBON

IN THIS ALTERNATIVE, CONTAMINATED GROUNDWATER IS PASSED THROUGH A BED OF GRANULAR ACTIVATED CARBON. VOLATILE ORGANICS ARE REMOVED BY DIRECT ADSORPTION ONTO THE CARBON PARTICLES. REMOVAL EFFICIENCY OF THIS TREATMENT METHOD EXCEEDS 99 PERCENT.

THE SPENT CARBON GENERATED BY THIS PROCESS MUST BE EITHER DISPOSED OF AT AN APPROVED HAZARDOUS-WASTE FACILITY OR REGENERATED. DISPOSAL OF SPENT CARBON IS THE ONLY DISADVANTAGE OF THIS ALTERNATIVE WITH RESPECT TO PUBLIC HEALTH AND THE ENVIRONMENT; REGENERATION OF SPENT CARBON WOULD MINIMIZE THE IMPACT OF THE PROCESS UPON PUBLIC HEALTH AND THE ENVIRONMENT.

$$* \$230,854 + \$156,300 + ((\$126,500 \times .13147 \text{ CR}(I) = 10\%) = \$16,631) \\ N = 15\%$$

$$+ 50,200 = \$453,985$$

$$** \$230,854 + \$156,300 + ((\$277,000 \times .13147) = \$36,417) + \$55,200 \\ = \$478,772.$$

THE FOLLOWING COSTS CORRESPOND TO A FACILITY CONSISTING OF TWO FIXED CONTACTORS HAVING A COMBINED VOLUME OF APPROXIMATELY 3,500 CUBIC FEET, ALONG WITH APPURTENANT ELECTRICAL, MECHANICAL AND CIVIL ELEMENTS. COSTS FOR CONTINUED OPERATIONS WERE DEVELOPED FOR TWO SCENARIOS: THE FIRST ASSUMED THE USE OF VIRGIN CARBON AND ITS DISPOSAL, THE SECOND INVOLVES OFFSITE CARBON REGENERATION. THESE COSTS WERE DEVELOPED WITH THE ASSUMPTION OF AN EXTRACTION FLOW RATE OF 2,000 GALLONS PER MINUTE, TREATMENT TO STATE ACTION LEVELS AND FEDERAL MAXIMUM CONTAMINANT LEVELS. FOR COMPARISON WITH THE OTHER TWO ALTERNATIVES, CAPITAL COSTS AND ANNUAL CONTINUED OPERATIONS COSTS ARE PROVIDED THAT DO NOT INCLUDE EXTRACTION AND CONVEYANCE. THE TOTAL COST AND PRESENT WORTH, HOWEVER, REFER TO THE ENTIRE SYSTEM, INCLUDING EXTRACTION, CONVEYANCE, AND TREATMENT.

	LOW	HIGH
CAPITAL COSTS		
TREATMENT PLANT	\$ 305,000	\$ 425,000
PILOT STUDY	-0-	10,000
CONTINGENCIES	20,000	58,000
TOTAL	325,000	493,000

ANNUAL CONTINUED OPERATION COST (TREATMENT PLANT)

I VIRGIN CARBON AND DISPOSAL

POWER	-0-	-0-
CARBON	178,500	210,000
DISPOSAL	100,000	126,000
MAINTENANCE	5,000	20,000
TOTAL	283,500	356,000

II REGENERATED CARBON

POWER	-0-	-0-
CARBON	94,500	94,500
10% MAKE UP	9,450	9,450
MAINTENANCE	5,000	20,000
TOTAL	108,950	123,950

TOTAL COST (INCLUDING EXTRACTION AND CONVEYANCE)

ANNUAL	\$ 713,383 *	\$ 807,971 (I)
PER 1000 GALLONS	0.679	0,769

* \$230,854		
+156,300		
+ 42,728 (325,000 X .13147)		
+203,500	\$ 538,833	\$ 575,921 (II)
\$713,382	0.513	0.548

PRESENT WORTH (15 YR., 10%)
(INCLUDING EXTRACTION AND CONVEYANCE)

I VIRGIN CARBON AND DISPOSAL

\$ 5,426,049	\$ 6,145,489
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II REGENERATED CARBON

\$ 4,098,407	\$ 4,380,499.
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EXTRACTION AND TREATMENT BY AERATION COMBINED WITH VAPOR-PHASE GAC

THIS ALTERNATIVE IS EXACTLY THE SAME AS THE AERATION ALTERNATIVE, EXCEPT THAT INSTEAD OF RELEASING CONTAMINANTS DIRECTLY TO THE ATMOSPHERE, THEY ARE REMOVED FROM THE AERATION-TOWER GASES BY VAPOR-PHASE GAC. THE AERATION TOWER GASES, COMPRISING MAINLY WATER VAPOR AND CONTAMINANT, ARE DEHUMIDIFIED AND THEN DIRECTED TO A GAS-PHASE GRANULAR ACTIVATED CARBON UNIT FOR FINAL PROCESSING. BY THIS MEANS, THE TWO PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS RELATED TO THE AERATION ALTERNATIVE ARE ELIMINATED; THE PUBLIC IS NOT EXPOSED TO POSSIBLE CARCINOGENS IN THE ATMOSPHERE AND AIR QUALITY IS NOT DEGRADED.

BECAUSE OF THE USE OF GRANULAR ACTIVATED CARBON, THIS ALTERNATIVE INVOLVES THE DISPOSAL OF SPENT CARBON, WHICH IS A CONCERN WITH RESPECT TO PUBLIC HEALTH AND THE ENVIRONMENT. AS WAS DISCUSSED

ABOVE, THE IMPACT OF THE GAC PROCESS UPON PUBLIC HEALTH AND THE ENVIRONMENT WOULD BE MINIMIZED BY REGENERATION OF SPENT CARBON. VAPOR-PHASE GAC DIFFERS FROM THE LIQUID-PHASE GAC PROCESS EVALUATED ABOVE IN BEING MORE EFFICIENT. THE METHOD, THEREFORE, USES LESS CARBON AND COULD RESULT IN THE GENERATION OF A SMALLER VOLUME OF SPENT CARBON.

REMOVAL EFFICIENCIES OF THE AERATION TREATMENT METHOD CAN EXCEED 99 PERCENT FOR TCE AND PCE. ADDITIONALLY, THE EFFICIENCY OF THE VAPOR-PHASE GAC IN REMOVING CONTAMINANTS FROM THE AERATION-TOWER GASES IS GREATER THAN 99 PERCENT. THE FOLLOWING COSTS CORRESPOND TO A FACILITY IDENTICAL TO THAT OF THE AERATION ALTERNATIVE WITH THE SINGLE EXCEPTION THAT A GAC UNIT IS ADDED TO THE AERATION COLUMN OFF-GAS TO PREVENT VENTING OF CONTAMINANTS TO THE ATMOSPHERE. COSTS FOR CONTINUED OPERATIONS WERE DEVELOPED FOR TWO SCENARIOS: THE FIRST ASSUMES THE USE OF VIRGIN CARBON AND ITS DISPOSAL, THE SECOND INVOLVES OFF-SITE CARBON REGENERATION. THESE COSTS WERE DEVELOPED WITH THE ASSUMPTION OF AN EXTRACTION FLOW RATE OF 2,000 GALLONS PER MINUTE, TREATMENT TO STATE ACTION LEVELS, AND FEDERAL MAXIMUM CONTAMINANT LEVELS. FOR COMPARISON WITH THE OTHER TWO ALTERNATIVES, CAPITAL COSTS AND ANNUAL CONTINUED OPERATIONS COSTS ARE PROVIDED THAT DO NOT INCLUDE EXTRACTION AND CONVEYANCE. THE TOTAL COST AND PRESENT WORTH, HOWEVER, REFER TO THE ENTIRE SYSTEM, INCLUDING EXTRACTION, CONVEYANCE, AND TREATMENT.

	LOW	HIGH
CAPITAL COSTS		
AERATION COSTS	\$ 126,500	\$ 277,000
CARBON CONTACTORS	100,000	120,000
PILOT STUDY	-0-	10,000
SUBTOTAL	226,500	407,000
CONTINGENCIES	10,000	30,000
TOTAL	236,500	437,000

ANNUAL CONTINUED OPERATION COST (TREATMENT PLANT)

I VIRGIN CARBON AND DISPOSAL

CARBON	40,000	45,000
PUMP POWER	-0-	-0-
DISPOSAL	15,000	21,000
ENERGY	8,500	8,500
CARBON HANDLING	-0-	17,500
MAINTENANCE	5,000	10,000
CHEMICALS	37,000	37,000
TOTAL	105,500	139,000

II REGENERATED CARBON

PUMP POWER	-0-	-0-
CARBON	17,000	45,000
MAKE UP LOSSES	4,500	7,000
FREIGHT	7,000	7,500
ENERGY	8,500	8,500
CARBON HANDLING	-0-	17,500
MAINTENANCE	5,000	10,000
CHEMICALS	37,000	37,000
TOTAL	79,000	132,500

\$ 497,248	\$ 577,108 (II)
0.473	0.549

TOTAL COST (INCLUDING EXTRACTION AND CONVEYANCE)

ANNUAL	\$ 523,748	\$ 583,608 (I)
PER 1000 GALLONS	0.498	0.555

PRESENT WORTH (15 YR., 10%)
(INCLUDING EXTRACTION AND CONVEYANCE)

I VIRGIN CARBON AND DISPOSAL

\$ 3,983,666	\$ 4,438,970
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II REGENERATED CARBON

\$ 3,782,105	\$ 4,389,531.
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6.0 COMMUNITY RELATIONS

IN DECEMBER, 1986 EPA AND DWP HELD A COMMUNITY MEETING ON THE OUF'S REPORT. THE MEETING WENT WELL, PANEL MEMBERS FROM LADWP AND EPA ADDRESSED COMMUNITY QUESTIONS AND SEVERAL COMMUNITY MEMBERS VERBALLY DELIVERED PREPARED COMMENTS. APPROXIMATELY 15 RESIDENTS ATTENDED PLUS A NUMBER OF AGENCY AND MEDIA REPRESENTATIVES.

A COMMUNITY WORK GROUP (CWG) WAS FORMED THAT IS COMPRISED OF RESIDENTS, PUBLIC INTEREST GROUPS, BUSINESS AND ELECTED OFFICIALS. THE CWG MEETS REGULARLY ON A BIMONTHLY BASIS TO DISCUSS ISSUES ASSOCIATED WITH THE SAN FERNANDO VALLEY SUPERFUND SITES.

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7.0 CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) REQUIRES THAT REMEDIES SELECTED MEET OR EXCEED ALL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS OF FEDERAL AND STATE ENVIRONMENTAL LAWS.

THE FOLLOWING IS A DISCUSSION OF THE REQUIREMENTS THAT ARE APPLICABLE OR RELEVANT AND APPROPRIATE TO THIS ACTION AND NOW THEY WILL BE MET BY EACH REMEDIAL ALTERNATIVE.

SAFE DRINKING WATER ACT

WATERS OF THE UNITED STATES AS DEFINED IN 40 CFR 230, SUBPART E, DOES NOT EXIST IN THE NORTH HOLLYWOOD BURBANK AREAS.

THE APPLICABLE FEDERAL ENVIRONMENTAL STATUTE IS THE SAFE DRINKING WATER ACT. UNDER THIS LAW, EPA ESTABLISHED DRINKING WATER REGULATIONS FOR CONTAMINANTS THROUGH A TWO-STEP PROCESS. FIRST, EPA PROMULGATES HEALTH-BASED LEVELS, TERMED MAXIMUM CONTAMINANT LEVEL GOALS (MCLG, PREVIOUSLY CALLED RECOMMENDED MAXIMUM CONTAMINANT LEVELS, OR RMCL) UNDER THE SAFE DRINKING WATER ACT AMENDMENT OF 1986. MCLGS ARE SET AT LEVELS AT WHICH NO ADVERSE PUBLIC HEALTH EFFECTS WOULD OCCUR AND ARE SET AT ZERO FOR KNOWN OR PROBABLE CARCINOGENS, SINCE THERE IS NO SAFE LEVEL OF EXPOSURE TO A CARCINOGEN. BECAUSE MCLGS ARE UNENFORCEABLE HEALTH GOALS, PUBLIC WATER SUPPLY SYSTEMS ARE NOT REQUIRED TO MEET THEM IN WATER THEY DELIVER TO THEIR CUSTOMER. EPA THEN ESTABLISHES MAXIMUM CONTAMINANT LEVELS (MCL) TAKING INTO ACCOUNT THE AVAILABILITY, COST AND TECHNICAL FEASIBILITY OF WATER TREATMENT TECHNOLOGIES THAT CAN BE USED TO REDUCE THE CONCENTRATIONS OF THE CONTAMINANT IN PUBLIC WATER SUPPLIES. MCL'S ARE ENFORCEABLE STANDARDS THAT MUST BE MET BY PUBLIC SUPPLY SYSTEMS.

THE STATE OF CALIFORNIA HAS DEVELOPED STATE ACTION LEVELS WHICH IN MOST CASES PARALLEL EPA'S MCL'S AND MCLG'S. FOR THE CONTAMINANTS IN QUESTION, THE FOLLOWING LEVELS APPLY:

CONTAMINANT	MCLG	MCL	SAL
TCE	0	5 PPB	5 PPB
PCE	0	--	4 PPB.

SECTION 121(D) OF CERCLA, AS AMENDED BY THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), REQUIRES THAT FUND-FINANCED REMEDIAL ACTIONS COMPLY WITH REQUIREMENTS OR STANDARDS UNDER FEDERAL AND STATE ENVIRONMENTAL LAWS. THE REQUIREMENTS THAT MUST BE COMPLIED WITH ARE THOSE THAT ARE APPLICABLE OR RELEVANT AND APPROPRIATE (ARAR) TO THE CONTAMINANTS AT THE SITE. IT HAS BEEN DETERMINED THAT THE MCL'S FOR TCE AND PCE ARE APPLICABLE TO THIS REMEDIAL ACTION. THIS ARAR IS A CHEMICAL-SPECIFIC REQUIREMENT. AN MCL IS AN APPROPRIATE STANDARD BECAUSE IT IS THE LEGALLY ENFORCEABLE STANDARD FOR DRINKING WATER, WHICH IS SET AS CLOSE TO THE HEALTH-BASED MCLGS AS FEASIBLE. THE MCL OF 5 PPB FOR TCE AND STATE ACTION LEVEL (SAL) OF 4 PPB FOR PCE IS THE APPROPRIATE CLEANUP LEVEL FOR THE SAN FERNANDO VALLEY GROUND WATER BASIN. THE AGENCY BELIEVES THAT MCLS ARE PROTECTIVE OF PUBLIC HEALTH. AS THE LEGALLY ENFORCEABLE STANDARDS UNDER THE SAFE DRINKING WATER ACT, THE MCLS REPRESENT THE LEVEL OF WATER QUALITY THAT EPA BELIEVES IS ACCEPTABLE FOR AMERICANS TO CONSUME EVERY DAY FROM PUBLIC DRINKING WATER SUPPLIES.

ALL OF THE FINAL REMEDIES WERE DESIGNED TO MEET THE MCL FOR TCE AND THE STATE ACTION LEVELS FOR TCE AND PCE. THIS WILL ENSURE THAT THE TREATMENT PLANT DOES NOT CAUSE A VIOLATION OF ANY STANDARDS AT THE TAP.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

THIS LEGISLATION RELATES TO THE ALTERNATIVES ONLY AS REGARDS THE DISPOSAL OF SPENT CARBON, GENERATED BY THE GAC PROCESS, AT A RCRA CLASS I DISPOSAL FACILITY. SPENT CARBON WILL BE DISPOSED OF AT AN APPROPRIATE FACILITY. PURSUANT TO CERCLA SECTION 104(C)(3)(B), THE STATE IS REQUIRED TO ASSURE THE AVAILABILITY OF A HAZARDOUS WASTE FACILITY. THE DWP, IN ITS INVITATION FOR BIDS FOR THE REMEDIAL ACTION, WILL REQUIRE RESPONDENTS TO PROVIDE ADEQUATE CAPACITY FOR WASTE DISPOSAL AT A FACILITY THAT MEETS ALL APPLICABLE REQUIREMENTS OF THE RESOURCE CONSERVATION AND RECOVERY ACT AND THAT IS CONSISTENT WITH EPA'S OFF-SITE DISPOSAL POLICY. A RCRA COMPLIANCE INSPECTION SHALL BE COMPLETED BY EPA OR THE STATE FOR THE WASTE FACILITY WITHIN SIX (6) MONTHS PRIOR TO THE RECEIPT OF THE DESIGNATED WASTES FROM THE SITE. THE EPA REGIONAL OFFICE IN WHICH THE FACILITY IS LOCATED WILL REVIEW THE RESULTS OF THE COMPLIANCE INSPECTION AND OTHER AVAILABLE INFORMATION TO DETERMINE IF THE FACILITY MEETS THE CRITERIA SET FORTH BY EPA.

CLEAN AIR ACT

IN CALIFORNIA, THE AUTHORITY FOR ENFORCING THE STANDARDS ESTABLISHED UNDER THE CLEAN AIR ACT HAS BEEN DELEGATED TO THE STATE. THE PROGRAM IS ADMINISTERED BY THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) IN LOS ANGELES. DWP WORKED WITH THE SCAQMD TO DEVELOP ALTERNATIVES THAT WOULD COMPLY WITH THEIR REGULATIONS. THE UNCONTROLLED AERATION FACILITY ALTERNATIVE WAS FOUND NOT TO POSE A SIGNIFICANT HEALTH RISK BY THE SCAQMD. HOWEVER, DUE TO OVERWHELMING CITIZEN CONCERN OVER RELEASE OF ANY ADDITIONAL AIR POLLUTANTS INTO THE SOUTH COAST AIR BASIN, THE RECOMMENDED REMEDY INCLUDES AIR POLLUTION CONTROL ON THE OFF-GASES FROM THE AERATION FACILITY.

THE CARBON AIR FILTERING UNITS WILL PROVIDE ADDITIONAL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT BY REDUCING TCE AND PCE AIR EMISSIONS. GIVEN THE CONCENTRATIONS OF CONTAMINANTS IN THE GROUND WATER, IT IS ESTIMATED THAT 16 LBS/DAY OF TCE AND 2.5 LBS/DAY OF PCE WOULD BE EMITTED INTO THE AIR WITHOUT CARBON AIR FILTERING UNITS. WITH THE ADDITION OF CARBON AIR FILTERING UNITS, IT IS ESTIMATED THAT THERE WILL BE 100 PERCENT CAPTURE OF THE CONTAMINANTS IN THE VAPOR PHASE. DWP'S PERMIT WITH SCAQMD REQUIRES A 90 PERCENT REMOVAL EFFICIENCY FOR AIR EMISSIONS.

THIS TECHNOLOGY IS CONSISTENT WITH EPA'S OFFICE OF AIR TOXICS POLICY OF REQUIRING CARBON ADSORPTION EMISSION CONTROLS ON ALL AERATION FACILITIES. THIS TECHNOLOGY IS ALSO SUPPORTED BY SARA WHICH EXPRESSES A PREFERENCE FOR TREATMENT THAT SIGNIFICANTLY AND PERMANENTLY REDUCES THE VOLUME, TOXICITY, OR MOBILITY OF THE WASTE TO THE MAXIMUM EXTENT POSSIBLE.

#RA

8.0 RECOMMENDED ALTERNATIVE

SARA, IN ADDITION TO SECTION 300.68(I) OF THE NATIONAL CONTINGENCY PLAN (30 CFR PART 300), DEFINES THE APPROPRIATE EXTENT OF REMEDIAL ACTION. REMEDIES MUST BE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT. REMEDIES THAT ATTAIN OR EXCEED APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) ARE PROTECTIVE. THE SELECTED REMEDY MUST ALSO BE COST-EFFECTIVE; THAT IS, IT MUST CONFER A LEVEL OF PROTECTION THAT CANNOT BE ACHIEVED BY LESS COSTLY ALTERNATIVES. SARA EXPRESSES A PREFERENCE FOR TREATMENT THAT PERMANENTLY AND SIGNIFICANTLY REDUCES VOLUME, TOXICITY OR MOBILITY TO THE MAXIMUM EXTENT PRACTICABLE.

EPA HAS DETERMINED THAT THE COST-EFFECTIVE INTERIM REMEDY IS EXTRACTION AND TREATMENT BY AERATION COMBINED WITH VAPOR-PHASE CARBON ADSORPTION. ALL THREE ALTERNATIVES THAT WERE CONSIDERED ARE CAPABLE OF ATTAINING THE ARARS (MCL AND STATE ACTION LEVELS) AND PROTECT HUMAN HEALTH. ALL THREE ALTERNATIVES ARE TECHNICALLY IMPLEMENTABLE AND CURRENTLY AVAILABLE FOR INSTALLATION. THE LONG-TERM RISK IS HIGHEST FOR THE AERATION ONLY FACILITY. THIS PLUS OVERWHELMING PUBLIC CONCERN OVER AIR EMISSIONS CAUSED EPA TO SELECT THE AERATION WITH CARBON ADSORPTION ON THE OFF-GAS ALTERNATIVE. THIS ALTERNATIVE, ALTHOUGH MORE COSTLY THAN AERATION BY APPROXIMATELY \$835,419 (SEE TABLE 8.1), PROVIDES AN ADDITIONAL LEVEL OF PROTECTION THAT IS NOT ACHIEVED BY THE AERATION ONLY ALTERNATIVE. THE REMEDY REDUCES THE MOBILITY OF THE CONTAMINANTS IN THAT AIR CONTAMINANTS ARE ADSORBED BY THE CARBON FILTER.

AS DISCUSSED IN SECTION 7.0 ABOVE, THE RECOMMENDED CLEANUP LEVEL IS THE MCL FOR TCE AND THE STATE ACTION LEVEL FOR PCE. THESE LEVELS WERE SELECTED BECAUSE THEY ARE ATTAINABLE, AND THEY PROVIDE A LEVEL OF PROTECTION OF PUBLIC HEALTH WHICH IS EQUIVALENT TO THAT REQUIRED IN ALL PUBLIC DRINKING WATER SYSTEMS.

ONCE THE REMEDY IS OPERATIONAL, IT IS ESTIMATED THAT 3200 ACRE/FEET/YEAR OF GROUNDWATER WILL BE TREATED AND CONSUMED. THE VALUE OF THE TREATED WATER IS ESTIMATED TO BE \$300,000/YEAR.

#OM

9.0 CONTINUED OPERATIONS

THE PROPOSED GROUNDWATER TREATMENT FACILITY, WILL BE UNDER AUTOMATIC OPERATION 24 HOURS A DAY. CONTINGENCIES, SUCH AS BLOWER FAILURE OR EXCESSIVE AERATION COLUMN HEAD LOSS HAVE BEEN PROVIDED FOR IN THE PROJECT DESIGN. GROUNDWATER EXTRACTION PUMPS WILL AUTOMATICALLY SHUT DOWN IF THE AERATION COLUMN FLOODS OR IF THERE IS A SUDDEN LOSS OF PRESSURE IN THE COLLECTOR LINE DUE TO A LEAK OR BREAK. MAINTENANCE OF THE FACILITY WILL CONSIST OF SCHEDULED CHECKS OF THE AERATION COLUMN AND CHLORINE AND SODIUM HEXAMETAPHOSPHATE INJECTION EQUIPMENT, WHICH WILL INCLUDE PERIODIC MAINTENANCE OF ALL MOVING EQUIPMENT AND PARTS ON AN AS-NEEDED BASIS. THE GRANULAR ACTIVATED CARBON EMISSIONS CONTROL CONTACTORS SHOULD REQUIRE ONLY MINIMAL MAINTENANCE; HOWEVER, THE AIR EMISSIONS FROM THE CONTACTORS WILL BE MONITORED ON A REGULAR BASIS TO ENSURE THAT AERATION CONTAMINANTS ARE NOT EMITTED TO THE ATMOSPHERE.

THE AERATION FACILITY WILL BE CONSTRUCTED BY THE DWP UNDER A COOPERATIVE AGREEMENT WITH EPA. BEFORE ENTERING INTO THE COOPERATIVE AGREEMENT, EPA WILL ENSURE THAT A 3-PARTY AGREEMENT BETWEEN EPA, THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS), AND DWP IS SIGNED WHICH DELINEATES EACH AGENCY'S ROLE. AS REQUIRED BY CERCLA/SARA, DHS WILL ASSURE 10% OF THE CONSTRUCTION FUNDS AND 10% OF THE CONTINUED OPERATIONS COSTS. ALTHOUGH THE STATE IS RESPONSIBLE FOR THE COST SHARE FOR CONTINUED OPERATIONS, THE POLITICAL SUBDIVISION, DWP, AGREES TO PROVIDE THE 10% DHS COST SHARED DWP AND THE STATE MUST ASSURE FULL RESPONSIBILITY FOR OPERATIONS AND MAINTENANCE.

EPA WILL SHARE 90% OF THE CONSTRUCTION AND CONTINUED OPERATIONS COSTS UNTIL THE FINAL REMEDIAL ACTION FOR AREA 1 IS SELECTED. AFTER THAT, THE EXTENT OF ANY FUTURE EPA PARTICIPATION WILL BE DETERMINED.

#SCH

10.0 SCHEDULE

APPROVAL OF ROD	AUGUST 31, 1987
AMEND COOPERATIVE AGREEMENT FOR DESIGN AND CONSTRUCTION	AUGUST 6, 1987
COMPLETE DESIGN	AUGUST 1987
START CONSTRUCTION	AUGUST 1987
COMPLETE CONSTRUCTION	DECEMBER 30, 1987.

#FA

11.0 FUTURE ACTIONS

THE OVERALL REMEDIAL INVESTIGATION FOR THE ENTIRE AREA IS EXPECTED TO BEGIN IN AUGUST 1987, AND WILL TAKE APPROXIMATELY 2 YEARS TO COMPLETE. THERE MAY BE ADDITIONAL OPERABLE UNITS IN THE OTHER THREE AREAS BEFORE THE FINAL REMEDIAL ACTION IS DETERMINED.

#TMA

TABLES, MEMORANDA, ATTACHMENTS

#RS

RESPONSIVENESS SUMMARY
FOR
THE NOVEMBER 1986 OPERABLE UNIT FEASIBILITY STUDY
AT THE
SAN FERNANDO VALLEY BASIN SUPERFUND SITE

SEPTEMBER 1987

SAN FERNANDO VALLEY BASIN SITE
RESPONSIVENESS SUMMARY
FOR THE
OPERABLE UNIT FEASIBILITY STUDY

SUMMARY OF MAJOR COMMENTS AND RESPONSES

INTRODUCTION

FROM NOVEMBER 20 THROUGH DECEMBER 22, 1986, THE LOS ANGELES DEPARTMENT OF WATER AND POWER (DWP) AND THE U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA) HELD A PUBLIC COMMENT PERIOD ON DWP'S OPERABLE UNIT FEASIBILITY STUDY REGARDING A PROPOSED GROUND WATER EXTRACTION AND TREATMENT FACILITY FOR THE NORTH HOLLYWOOD-BURBANK WELL FIELD OF THE SAN FERNANDO VALLEY BASIN (SFVB) IN LOS ANGELES COUNTY, CALIFORNIA. IN 1980, TRICHLOROETHYLENE (TCE) AND TETRACHLOROETHYLENE (PCE) WERE DISCOVERED IN ONE QUARTER OF DWP'S WELLS IN THE SAN FERNANDO VALLEY GROUNDWATER BASIN. DWP BEGAN A PROGRAM TO CONTROL THE SPREAD OF CONTAMINATION IN 1983, WHICH INVOLVED PUMPING AND BLENDING OF THE CONTAMINATED GROUND WATER WITH SURFACE WATER SUPPLIES. THE PURPOSE OF THE PUBLIC COMMENT PERIOD WAS TO GIVE INTERESTED PARTIES THE OPPORTUNITY TO REVIEW AND COMMENT ON THE REPORT AND ALLOW THE AGENCIES TO RESPOND TO COMMUNITY CONCERNS.

THE NORTH HOLLYWOOD-BURBANK WELL FIELD HAS BEEN DESIGNATED AS ONE OF FOUR FEDERAL NATIONAL PRIORITIES LIST (NPL) SITES IN THE SAN FERNANDO VALLEY. THE SAN FERNANDO VALLEY GROUNDWATER BASIN COMPRISES 112,000 ACRES OF LAND SITUATED AMONG THE COASTAL RANGES WITHIN THE LOS ANGELES METROPOLITAN AREA. DWP, BURBANK, AND GLENDALE DRAW WATER FROM THE NORTH HOLLYWOOD-BURBANK WELL FIELD TO PROVIDE DRINKING WATER TO RESIDENTS OF THOSE CITIES.

IN MARCH 1986, AN "ADVANCE MATCH" COOPERATIVE AGREEMENT WAS SIGNED BETWEEN EPA AND DWP; SUBSEQUENTLY DWP BEGAN PREPARATION OF AN OPERABLE UNIT FEASIBILITY STUDY (OUFS). THE "OPERABLE UNIT" IS A SHORT-TERM ACTION INTENDED TO HALT THE SPREAD OF CONTAMINATION AND REDUCE ITS IMPACT ON THE SURROUNDING COMMUNITY UNTIL A PERMANENT REMEDY IS IMPLEMENTED.

THIS RESPONSIVENESS SUMMARY IS REQUIRED UNDER EPA POLICY FOR THE PURPOSE OF PROVIDING BOTH EPA AND THE INTERESTED PUBLIC WITH A REVIEW AND SUMMARY OF COMMUNITY CONCERNS REGARDING SITE ISSUES, AND A STATEMENT OF AGENCY RESPONSES TO THOSE CONCERNS. THE RESPONSIVENESS SUMMARY IS DIVIDED INTO THREE SECTIONS:

- I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS. THIS SECTION PROVIDES A BRIEF HISTORY OF COMMUNITY CONCERNS ABOUT SITE PROBLEMS AND THE PROPOSED PROJECT.
- II. OVERVIEW OF THE OPERABLE UNIT FEASIBILITY STUDY. THIS SECTION LISTS AND DESCRIBES PROPOSED REMEDIAL ALTERNATIVES PRESENTED IN THE DRAFT OUFS, AND IDENTIFIES EPA'S PREFERRED ALTERNATIVE.
- III. SUMMARY OF COMMENTS RECEIVED AND DWP AND EPA RESPONSES. THIS SECTION CATEGORIZES AND SUMMARIZES WRITTEN AND ORAL COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND PROVIDES EPA'S AND DWP'S RESPONSES TO THESE COMMENTS.

APPENDIX A CONTAINS COPIES OF ALL WRITTEN COMMENTS ON THE OUFS RECEIVED BY EPA AND LADWP DURING THE PUBLIC COMMENT PERIOD.

I. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

IN 1981, PLANNING GRANTS WERE OBTAINED BY DWP UNDER SECTION 208 OF THE CLEAN WATER ACT TO STUDY THE GROUND-WATER CONTAMINATION PROBLEM IN THE SAN FERNANDO VALLEY. TO CONDUCT THE STUDY, A TECHNICAL ADVISORY COMMITTEE AND A CITIZEN'S ADVISORY COMMITTEE (CAC) WERE FORMED TO INVOLVE LOCAL AGENCIES AND COMMUNITY GROUPS. THE CAC WAS COMPOSED OF REPRESENTATIVES FROM LOCAL GOVERNMENTS, PUBLIC INTEREST GROUPS, BUSINESS GROUPS, AND PRIVATE CITIZENS. THE RECOMMENDATIONS OF THESE COMMITTEES WERE INCORPORATED INTO THE GROUND-WATER QUALITY MANAGEMENT PLAN - SAN FERNANDO VALLEY (REFERRED TO AS THE GROUND-WATER PLAN). IN ADDITION TO TECHNICAL RECOMMENDATIONS, THIS REPORT INCLUDED A PLAN FOR PUBLIC EDUCATION AND PARTICIPATION IN GROUND-WATER CLEANUP PROGRAMS. THE CAC RECOMMENDED PROGRAMS TO EDUCATE THE PUBLIC ON HOUSEHOLD WASTE DISPOSAL AND HAZARDOUS WASTE MANAGEMENT ISSUES INCLUDING WASTE DISPOSAL, TRANSPORT, AND THE SITING OF DISPOSAL OR TRANSFER FACILITIES. CAC MEMBERS ALSO KEPT THEIR RESPECTIVE ORGANIZATIONS INFORMED ABOUT THE PROGRESS OF THE GROUND-WATER PLAN STUDY.

WHEN THE CAC WAS DISSOLVED AT THE END OF THE TWO-YEAR STUDY, THE INTERAGENCY COORDINATING COMMITTEE (ICC) WAS FORMED TO IMPLEMENT RECOMMENDATIONS FROM THE GROUND-WATER PLAN. THE ICC CONDUCTS PUBLIC INFORMATION ACTIVITIES THROUGH THE SMALL QUANTITY GENERATOR/HAZARDOUS WASTE DISPOSAL PROGRAM AND THE PUBLIC EDUCATION PROGRAM. THE FORMER PROGRAM CONDUCTED SURVEYS OF BUSINESSES IN THE NORTH HOLLYWOOD AREA REGARDING WASTE DISPOSAL PRACTICES. THROUGH THE SURVEYS, PARTICIPANTS BECAME AWARE OF THE GROUND-WATER CONTAMINATION PROBLEM. THE LATTER PROGRAM'S GOAL IS TO FOSTER COMMUNITY AWARENESS ABOUT THE IMPORTANCE OF RESPONSIBLE HAZARDOUS WASTE MANAGEMENT, TREATMENT ALTERNATIVES, TRANSPORTATION SAFETY, SITING RELIABLE WASTE FACILITIES, AND PREVENTING NEW AREAS OF CONTAMINATION.

IN 1987, EPA AND DWP STARTED MEETING ON A REGULAR BASIS WITH A COMMUNITY WORK GROUP (CWG) COMPRISED OF REPRESENTATIVES FROM INVOLVED AGENCIES, ELECTED OFFICIALS, COMMUNITY GROUPS, AND ENVIRONMENTAL ORGANIZATIONS. THE CWG MEETINGS PROVIDE A FORUM FOR EPA AND DWP TO INFORM THE COMMUNITY ABOUT CURRENT SITE ACTIVITIES AND RECEIVE FEEDBACK AND OPINIONS ON ISSUES AND PROPOSED ACTIVITIES. MEMBERS OF THE CWG WILL REVIEW SITE-RELATED DOCUMENTS AND REPORTS AND WILL PROVIDE EPA AND DWP WITH COMMENTS ON TECHNICAL ACTIONS TAKEN AT THE SITE.

II. OVERVIEW OF THE OPERABLE UNIT FEASIBILITY STUDY

THE OPERABLE UNIT FEASIBILITY STUDY (OUFS) FOR THE NORTH HOLLYWOOD/BURBANK AREA WAS CONDUCTED BY EPA AND DWP TO IDENTIFY AND EVALUATE VARIOUS ALTERNATIVES FOR HALTING THE SPREAD OF CONTAMINATION PLUMES IN THE GROUND WATER UNTIL A FINAL CLEANUP REMEDY IS DEVELOPED. THE FOLLOWING THREE REMEDIAL ALTERNATIVES WERE IDENTIFIED FOR SCREENING IN THE DRAFT OUFS:

1. EXTRACTION AND TREATMENT BY AERATION IS A METHOD WHEREBY VOLATILE ORGANIC COMPOUNDS (VOCS) ARE REMOVED FROM THE GROUND WATER BY VOLATILIZATION AT THE AIR-WATER INTERFACE. THE PUMPED GROUND WATER IS RUN THROUGH A VERTICAL COLUMN CONTAINING A PACKING MEDIUM. THE MEDIUM PROVIDES GREAT SURFACE AREA OVER WHICH A COUNTERCURRENT FLOW OF AIR IS INTRODUCED. THE CONTAMINANTS ARE TRANSFERRED FROM THE WATER TO THE AIR AND SUBSEQUENTLY REMOVED.
2. EXTRACTION AND TREATMENT BY GRANULAR ACTIVATED CARBON IS A METHOD WHEREBY CONTAMINATED GROUND WATER IS PASSED THROUGH A BED OF GRANULAR ACTIVATED CARBON. VOCS ARE REMOVED BY DIRECT ADSORPTION ONTO THE CARBON PARTICLES.
3. EXTRACTION AND TREATMENT BY AERATION COMBINED WITH VAPOR-PHASE GRANULAR ACTIVATED CARBON (GAC) IS EXACTLY THE SAME AS THE AERATION ALTERNATIVE, EXCEPT THAT INSTEAD OF RELEASING CONTAMINANTS DIRECTLY TO THE ATMOSPHERE, THEY ARE REMOVED FROM THE AERATION-TOWER GASES BY VAPOR-PHASE GAC.

EPA RECEIVED COMMENTS AND QUESTIONS ON EACH OF THE PROPOSED ALTERNATIVES, AS WELL AS ON OTHER ASPECTS OF THE OUFS. THESE QUESTIONS AND COMMENTS ARE SUMMARIZED IN SECTION III.

III. SUMMARY OF COMMENTS RECEIVED AND DWP AND EPA RESPONSES

FOR PURPOSES OF SIMPLIFICATION, EPA HAS CATEGORIZED THE COMMENTS (AND RESPONSES TO THOSE COMMENTS) AS FOLLOWS:

1. COMMENTS FROM MEMBERS OF THE INTERESTED PUBLIC; AND
2. COMMENTS FROM STATE AGENCIES.

EACH OF THESE CATEGORIES IS FURTHER DIVIDED INTO THE FOLLOWING SUBCATEGORIES:

1. POLICY ISSUES;
2. COST ISSUES;
3. TECHNICAL ISSUES;
4. REMEDIAL ALTERNATIVE PREFERENCE;
5. PROCESS ISSUES;
6. HEALTH ISSUES; AND
7. MISCELLANEOUS ISSUES.

III.1 COMMENTS MADE BY INTERESTED COMMUNITY MEMBERS

THE BULK OF THE COMMENTS REGARDING THE OPERABLE UNIT FEASIBILITY STUDY (OUFS) WERE RECEIVED FROM MEMBERS OF THE COMMUNITY. MANY OF THESE COMMENTS EXPRESSED CONCERNS ABOUT THE EMISSIONS FROM THE PROPOSED AERATION TOWER. SPECIFIC COMMENTS AND QUESTIONS ARE SUMMARIZED BELOW.

A. POLICY ISSUES:

1. ONE COMMUNITY MEMBER ASKED WHY THE AERATION TOWER WOULD BE ALLOWED TO EMIT 2 POUNDS RATHER THAN 20 POUNDS OF CONTAMINANTS PER DAY.

DWP RESPONSE:

THE AERATION TOWER IS DESIGNED TO REMOVE APPROXIMATELY 20 POUNDS OF VOLATILE ORGANIC COMPOUNDS PER DAY. HOWEVER, THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) AIR EMISSIONS PERMIT REQUIRES THAT AT LEAST 90% (OR 18 POUNDS) OF THESE EMISSIONS BE CAPTURED BY THE ACTIVATED CARBON FILTERS RATHER THAN BE RELEASED INTO THE AIR.

2. SEVERAL COMMENTERS (CITIZENS FOR A BETTER ENVIRONMENT AND CITIZENS FOR SAFE DRINKING WATER) STATED THAT BLENDING OF CONTAMINATED GROUND WATER WITH WATER FROM OTHER SOURCES SHOULD NOT BE USED TO REDUCE CONTAMINANT LEVELS TO MAXIMUM CONTAMINANT LEVELS (MCLS). LEVELS OF TRICHLOROETHYLENE (TCE) AND PERCHLOROETHYLENE (PCE) SHOULD BE REDUCED TO THE MCLS WITHOUT BLENDING.

DWP RESPONSE:

EPA'S RECORD OF DECISION CLARIFIES THAT CONTAMINATED GROUND WATER WILL BE TREATED IN THE AERATION TOWER SO THAT LEVELS OF CONTAMINATION DO NOT EXCEED THE MAXIMUM CONTAMINANT LEVEL OF 5 PARTS PER BILLION (PPB) FOR TCE AND THE STATE ACTION LEVEL OF 4 PPB FOR PCE. TREATED GROUND WATER WILL THEN BE BLENDED WITH OTHER WATER BEFORE DISTRIBUTION. ADEQUATE CONTINGENCIES WILL BE INCLUDED IN THE DESIGN OF THE FACILITY TO ENSURE THAT THESE STANDARDS WILL BE MET. HOWEVER, SHOULD THE FACILITY BE UNABLE TO TREAT TO THESE LEVELS, THEN EITHER THE OPERATION OF THE FACILITY WILL BE MODIFIED UNTIL THE STANDARDS ARE ACHIEVED, OR THE WATER WILL NOT BE SERVED. BLENDING OF TREATED GROUND WATER WILL NOT BE USED AS A METHOD OF ATTAINING THE STANDARDS.

AT THE TIME THE MAY 1986 OUFS DRAFT WAS PREPARED, NEITHER TREATMENT TO MAXIMUM CONTAMINANT LEVEL (MCL) NOR AIR EMISSIONS CONTROL (VAPOR-PHASE GAC) WAS CONSIDERED A REQUIREMENT FOR EPA FUNDING. SUBSEQUENT TO A REVIEW OF THE DRAFT, EPA INDICATED THAT THESE CONCERNS WOULD HAVE TO BE CONSIDERED IF EPA WAS TO FUND THE PROJECT AT ALL.

CONSEQUENTLY, THE ORIGINAL AERATION FACILITY DESIGN WAS EXTENSIVELY REVIEWED BY DWP, ITS DESIGN CONSULTANT, AND BY EPA'S CONSULTANT WITH REGARD TO EXPECTED TREATMENT EFFICIENCY. THE CONSENSUS WAS THAT THE EXISTING DESIGN COULD MEET THE MCL REQUIREMENT GIVEN MINOR MODIFICATIONS (NOTABLY, INCREASING THE DEPTH OF PACKING MEDIA). IN SPITE OF THIS CONSENSUS, HOWEVER, IT IS MEANINGLESS TO DISCUSS PACKED-TOWER EFFICIENCIES BEYOND TWO SIGNIFICANT FIGURES; THE TECHNOLOGY IS NOT THAT WELL KNOWN. SHOULD THE PROPOSED FACILITY NOT PROVIDE TREATMENT DOWN TO MCL FOR ALL OBSERVED CONTAMINANTS, THEN OPERATIONAL PARAMETERS MUST BE ADJUSTED TO PROVIDE SUCH TREATMENT OR EPA WILL ORDER THE FACILITY TO BE SHUT DOWN. BLENDING OF TREATED GROUND WATERS WILL NOT BE USED AS A METHOD OF ATTAINING THE MCL CRITERION.

3. THE REPRESENTATIVES OF CITIZENS FOR A BETTER ENVIRONMENT (CBE) AND THE FEDERATION OF HILLSIDE AND CANYON ASSOCIATIONS (FHCA) STATED THAT EPA HAS SET THE RECOMMENDED MCL (RMCL) FOR THE CHEMICAL TCE AT ZERO. THEREFORE, ANY REMEDIAL ACTION PROPOSAL SHOULD USE THE RMCL AS ITS

CLEANUP OBJECTIVE, RATHER THAN THE MCL.

DWP RESPONSE:

THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT INDICATES THAT THE MAXIMUM CONTAMINANT LEVEL GOALS (MCLGS), FORMERLY RMCLS, SHOULD BE CONSIDERED WHEN DETERMINING APPLICABLE AND RELEVANT OR APPROPRIATE STANDARDS FOR SUPERFUND CLEANUPS. HOWEVER, IN THE SITUATION WHERE TREATED WATER WILL BE USED FOR DRINKING, EPA HAS DETERMINED THAT THE APPLICABLE STANDARD IS THE MCL. THE MCL IS THE LEGALLY ENFORCEABLE STANDARD FOR DRINKING WATER WHICH IS SET AS CLOSE TO THE HEALTH-BASED MCLG AS FEASIBLE. EPA BELIEVES THAT THE MCLS ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT AND ARE, THEREFORE, THE APPROPRIATE STANDARDS.

4. CITIZENS FOR SAFE DRINKING WATER (CSDW) STATED THAT THE COMMUNITY NEEDS AN ASSURANCE FROM THE GOVERNMENT THAT THE GROUND WATER WILL BE TREATED TO MCLS WRITTEN INTO THE OUF'S.

DWP RESPONSE:

EPA'S DECISION DOCUMENT, THE RECORD OF DECISION, ASSURES THAT GROUND WATER WILL BE TREATED TO THE MCL OF 5 PPB FOR TCE AND THE STATE ACTION LEVEL OF 4 PPB FOR PCE. THIS IS THE APPROPRIATE DOCUMENT IN WHICH TO MAKE THE ASSURANCE RATHER THAN THE OUF'S REPORT, WHICH PRESENTS A RANGE OF OPTIONS FOR PUBLIC CONSIDERATION. IN ADDITION, ONCE THE FACILITY IS CONSTRUCTED, AN OPERATION AND MAINTENANCE PLAN WILL BE DEVELOPED THAT WILL ENSURE THAT THE FACILITY IS PROPERLY OPERATED TO ATTAIN THE STANDARDS.

5. CSDW STATED THAT ITS FUNDAMENTAL GOAL FOR THE OUF'S IS THAT PROTECTION OF PUBLIC HEALTH BE THE PRIMARY CONSIDERATION IN SELECTING THE REMEDIAL ACTION. CSDW BELIEVES THAT THE WATER LEAVING THE AERATION TOWER MUST BE CLEANED TO THE MAXIMUM POSSIBLE EXTENT -- THAT 99 - 99.9 PERCENT OF THE CONTAMINANTS BE REMOVED -- AND THAT THE REMEDIAL ACTION MUST NOT RESULT IN CROSS-MEDIA CONTAMINATION.

DWP RESPONSE:

EPA'S STANDARDS FOR PROTECTION OF PUBLIC HEALTH ARE ESTABLISHED UNDER THE SAFE DRINKING WATER ACT AS THE MCLS. THE LEVELS ARE SET AT A CONCENTRATION THAT IS PROTECTIVE OF PUBLIC HEALTH RATHER THAN AS A PERCENT REMOVAL SO THAT, REGARDLESS OF THE DEGREE OF CONTAMINATION, THE MCL MUST BE ACHIEVED. CROSS-MEDIA CONTAMINATION (THE TRANSFER OF CONTAMINANTS FROM THE GROUND WATER TO THE AIR) WILL BE MINIMIZED BY THE USE OF ACTIVATED CARBON FILTERS ON THE OFF-GASES FROM THE AERATION FACILITY.

6. CBE COMMENTED THAT EPA SHOULD SPECIFY THAT THE NEW AERATION TOWER OPERATE AT MAXIMUM EFFICIENCY REGARDLESS OF VOLATILE ORGANIC CONTAMINANT (VOC) THROUGHPUT CONCENTRATION.

DWP RESPONSE:

AS STATED IN THE RESPONSE TO COMMENT #5, EPA'S STANDARD FOR PROTECTION OF PUBLIC HEALTH IS THE MCL. THE AERATION FACILITY IS DESIGNED TO ACHIEVE THE MCL RATHER THAN A PERCENTAGE OF REDUCTION OF THE CONTAMINATION.

7. ONE COMMUNITY MEMBER COMMENTED THAT THE EPA FAILED TO CONDUCT A COMPREHENSIVE EVALUATION OF EITHER THE SITE OR ALTERNATIVE REMEDIAL ACTIONS FOR ADDRESSING CONTAMINATION AT THE SITE, AS REQUIRED BY SUPERFUND REGULATIONS. SPECIFICALLY, CONCERN WAS EXPRESSED OVER THE ADEQUACY OF DWP'S EVALUATION OF CURRENT AIR QUALITY AND THE HEALTH RISKS POSED BY THE SITE.

DWP RESPONSE:

AN AIR QUALITY/HEALTH RISK ASSESSMENT WAS CONDUCTED BY A CONSULTANT FOR THE DWP FOR THE AERATION-ONLY ALTERNATIVE. ON THE BASIS OF THIS STUDY, THE DEPARTMENT OF HEALTH SERVICES AND THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT APPROVED THE PROJECT. IN ADDITION, ANOTHER DWP CONSULTANT CONDUCTED AMBIENT AIR QUALITY STUDIES AT AND NEAR THE PROJECT SITE; THESE STUDIES INDICATED THAT BACKGROUND (EXISTING) TCE/PCE CONCENTRATIONS IN AIR WOULD NOT INCREASE SIGNIFICANTLY DUE TO AN AERATION-ONLY FACILITY. SINCE GAC AIR EMISSIONS CONTROL HAS BEEN ADDED TO THE DESIGN, HOWEVER, THE IMPACT OF THE PROJECT ON AIR QUALITY WILL BE NEGLIGIBLE. THEREFORE, A DETAILED AIR QUALITY/PUBLIC HEALTH ASSESSMENT OF THE RECOMMENDED PROJECT WAS OMITTED. (SEE

APPENDIX 9 IN THE OUF5 REPORT.)).

ADDITIONALLY, EPA CONSIDERS THE OUF5 AS A COMPREHENSIVE EVALUATION. THE PRIMARY CONCERN OF THE SUPERFUND PROGRAM IS THE HEALTH RISK POSED BY AIR AND WATER RELEASES FROM THE SITE. IF BACKGROUND LEVELS OF CONTAMINANTS ARE HIGH ENOUGH TO BE OF CONCERN, EPA MAY ALSO CONSIDER BACKGROUND LEVELS WHEN CONDUCTING RISK ASSESSMENTS. IN CONDUCTING THIS OUF5, EPA HAS DETERMINED THAT THE HEALTH IMPACTS OF IMPLEMENTING THE THREE ALTERNATIVES FALL WITHIN AN ACCEPTABLE RANGE.

8. A COMMUNITY MEMBER STATED THAT EPA SHOULD REVIEW THE ADEQUACY OF THE DATA USED BY DWP IN THE RISK ASSESSMENT.

DWP RESPONSE:

RISK ASSESSMENT INFORMATION PRESENTED IN THE OUF5 REPORT WAS REVIEWED AND APPROVED BY EPA.

9. A MEMBER OF FHCA NOTED THAT SECTION VI, PAGE 117 MENTIONED THAT "PRELIMINARY DESIGN CAN BE MODIFIED TO ELIMINATE CONTAMINANT AIR EMISSIONS WHILE ACHIEVING TREATMENT EFFICIENCIES DOWN TO MCL.". THE MEMBER BELIEVES THAT THE USE OF SUCH TERMS AS "CAN BE MODIFIED" AND "CAN BE TAILORED" IS NOT SUFFICIENTLY PRECISE.

DWP RESPONSE:

THE PURPOSE OF THE OUF5 REPORT IS TO EVALUATE THE RELATIVE MERITS OF SEVERAL REMEDIAL ALTERNATIVES AND TO RECOMMEND A PREFERRED ALTERNATIVE. DESIGN PARAMETERS WILL BE SPECIFIED IN THE REMEDIAL DESIGN PHASE OF THIS PROJECT, AND OPERATIONAL PARAMETERS WILL BE DEFINED IN THE OPERATION AND MAINTENANCE (O&M) PLAN FOR THE SITE. AS DESCRIBED IN THE REPORT, A SAFETY FACTOR IS IMPLIED IN THE FACILITY DESIGN. SHOULD THE PLANT CAPABILITY BE EXCEEDED (THAT IS, IF UNEXPECTEDLY HIGH CONTAMINANT CONCENTRATIONS ARE ENCOUNTERED), THE AIR-TO-WATER RATIO CAN BE INCREASED OR SELECTIVE PUMPING OF THE EXTRACTION WELLS CAN BE IMPLEMENTED AS CORRECTIVE ACTIONS. THE ADDITION OF THE GAC CONTACTORS WILL ENHANCE FACILITY PERFORMANCE.

10. CBE STATED THAT NO CUMULATIVE IMPACT ANALYSIS WAS PERFORMED FOR THE AERATION-ONLY ALTERNATIVE. WITHOUT THIS CUMULATIVE ANALYSIS, THE CONCLUSIONS DRAWN ABOUT THE HEALTH EFFECTS OF THE AERATION TOWER, OR COMPARISONS WITH OTHER ALTERNATIVES, ARE INCOMPLETE.

DWP RESPONSE:

A CUMULATIVE AERATION-ONLY HEALTH IMPACT ANALYSIS IS PRESENTED IN APPENDIX 9 OF THE OUF5 REPORT.

IN CONDUCTING PUBLIC HEALTH EVALUATIONS, EPA CONSIDERS THE CUMULATIVE RISKS FROM DIFFERENT PATHWAYS OF EXPOSURE, USING APPROPRIATE INDICATOR CHEMICALS.

11. CBE STATED THAT THE OUF5 SHOULD NOT BE LIMITED TO REPORTING OR DISCUSSING ONLY THOSE WELLS THAT ARE CONTAMINATED ABOVE MCLS. RATHER, CBE BELIEVES THE REPORT SHOULD PROVIDE ALL THE INFORMATION COLLECTED ON GROUND-WATER CONTAMINATION.

DWP RESPONSE:

THE OVERALL REMEDIAL INVESTIGATION WILL PROVIDE COMPREHENSIVE INFORMATION ON GROUND-WATER CONTAMINATION IN THE FOUR NPL AREAS.

12. CBE STATED THAT EPA SHOULD MAKE CLEAR ITS POSITION ON BLENDING. THIS PROJECT IS REQUIRED TO MEET SUPERFUND STANDARDS OF EMPLOYING A PERMANENT CLEANUP STRATEGY, WHICH DO NOT INCLUDE BLENDING.

DWP RESPONSE:

UNDER THE SAFE DRINKING WATER ACT, BLENDING OF CONTAMINATED GROUND WATER WITH OTHER SOURCES OF WATER IS AN ACCEPTABLE METHOD BY WHICH TO ATTAIN THE STANDARDS (MCLS). THE GOAL OF THE SUPERFUND PROGRAM IS TO COMPLY WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS UNDER OTHER ENVIRONMENTAL STATUTES. THUS, IN SOME INSTANCES BLENDING MAY BE APPROPRIATE. HOWEVER, FOR THE NORTH HOLLYWOOD AERATION FACILITY, EPA HAS DETERMINED THAT BLENDING WILL NOT BE USED TO

ATTAIN MCLS. THE AERATION FACILITY WILL TREAT CONTAMINATED GROUND WATER TO THE MCL BEFORE THE WATER IS INTRODUCED INTO THE DISTRIBUTION SYSTEM.

13. CBE BELIEVES THAT THE STATEMENT ON PAGE 75, THIRD PARAGRAPH, "THE MAGNITUDE OF THE ENVIRONMENTAL IMPACT OF LANDFILLING SPENT CARBON IS PROBABLY SIMILAR TO THE MAGNITUDE OF THE HEALTH RISK FROM AERATION," IS AN INSUPPORTABLE STATEMENT AND SHOULD BE ELIMINATED.

DWP RESPONSE:

COMMENT ACKNOWLEDGED; AN ADDENDUM WILL BE ADDED TO THE OUF'S REPORT TO SO INDICATE.

14. CBE STATED THAT THE SPECULATION AS TO WHAT COULD HAPPEN TO SPENT CARBON, ON PAGE 76, THIRD PARAGRAPH, IS INAPPROPRIATE. IT SHOULD BE EITHER RIGOROUSLY SUPPORTED OR DELETED.

DWP RESPONSE:

COMMENT ACKNOWLEDGED; AN ADDENDUM WILL BE ADDED TO THE OUF'S REPORT TO SO INDICATE.

15. CBE ASKED WHY HYPOTHETICAL COST ESTIMATES WERE USED FOR THE REMEDIAL ALTERNATIVES, WHEN ACTUAL COST ESTIMATES WERE AVAILABLE. BOTH FHCA AND CSDW COMMENTED THAT THE INITIAL STUDY OF THE PROPOSED AERATION FACILITY PLANNED TO TREAT BETWEEN 1,000 AND 2,000 GALLONS PER MINUTE (GPM). SECTION II OF THE OUF'S CONFIRMED THE 2,000 GPM FIGURE. THE ENSUING DISCUSSION OF COSTS, HOWEVER, APPEARS TO BE BASED ON THE 1,000 GPM RATE; THESE GROUPS QUESTIONED WHETHER THIS FIGURE IS AN ERROR.

DWP RESPONSE:

SEVERAL LITERATURE SOURCES PROVIDED DATA FOR 1,000 GALLONS PER MINUTE (GPM) FACILITIES OR PROTOTYPES. RATHER THAN TRY TO SCALE THIS DATA UP TO A 2,000 GPM PLANT, THE PRELIMINARY COST ESTIMATES WERE BASED ON THE LITERATURE AS GIVEN FOR INITIAL COMPARISON PURPOSES ONLY. THIS IS EXPLAINED ON PAGE 78 OF THE REPORT. ACTUAL LITERATURE COST DATA FOR A 2,000 GPM FACILITY WAS NOT AVAILABLE.

16. CBE QUESTIONED THE LAST SENTENCE OF THE SECOND PARAGRAPH ON PAGE 103, WHICH READS "IMPLEMENTATION OF ANY OF THE THREE ALTERNATIVES WOULD ULTIMATELY ATTAIN AND EXCEED THE APPLICABLE HEALTH STANDARDS...". CBE BELIEVES THAT THE WORD "ULTIMATELY" IS "VAGUE AND CONFUSING," IMPLYING THAT THE HEALTH STANDARDS WILL BE MET AFTER TREATMENT WITH THE USE OF BLENDING AS ORIGINALLY PROPOSED. CBE SUGGESTED THAT THE REPORT STATE THAT HEALTH STANDARDS WILL BE MET AT THE TIME OF TREATMENT, AND THAT THE VAGUE LANGUAGE IN QUESTION BE ELIMINATED.

DWP RESPONSE:

COMMENT ACKNOWLEDGED. AT NO TIME WAS BLENDING CONSIDERED AS A VIABLE MEANS OF ACHIEVING TREATMENT TO MCL FOR THE PROPOSED FACILITY. ALL THREE ALTERNATIVES WILL ATTAIN MCLS AFTER TREATMENT.

17. CBE BELIEVES THAT THE DISCUSSION OF HEALTH RISKS ON PAGE 109, SECOND PARAGRAPH, SHOULD REFERENCE THE AUGUST 21, 1986 PUBLIC HEARING REPORT BY EUGENE CALAFATO OF THE SCAQMD. THE REPORT CONCLUDED THAT A CUMULATIVE EFFECTS ASSESSMENT SHOULD HAVE BEEN DONE FOR THE AERATION-ONLY ALTERNATIVE. WITHOUT THIS EVALUATION, THE COMMENTER BELIEVES IT IS PREMATURE TO SAY THAT THIS PROJECT COULD BE CONSIDERED SAFE.

DWP RESPONSE:

COMMENT ACKNOWLEDGED; AUGUST 21, 1986 SCAQMD MEETING REFERENCED. NEW REMEDY SELECTED WILL PROVIDE AN ADDED MEASURE OF PROTECTION WITH THE CARBON AIR FILTERING UNITS.

B. COST ISSUES:

18. ONE COMMUNITY MEMBER ASKED WHY THE DWP REPRESENTATIVE AT THE DECEMBER 9, 1986 PUBLIC HEARING ON THE OUF'S USED THE HIGHEST COST ESTIMATES IN HIS TALK, RATHER THAN THE RANGES DISCUSSED IN THE OUF'S IN APPENDIX 10.

DWP RESPONSE:

THE HIGHEST REASONABLE COST ESTIMATES WERE USED IN ORDER TO PROVIDE A CONSERVATIVE ESTIMATE OF TOTAL PROJECT COSTS. IN ALL PROBABILITY, THE ACTUAL COSTS OF THE GROUND WATER TREATMENT FACILITY WILL NOT BE THAT HIGH.

19. ONE COMMENTER ASKED WHETHER EPA HAS MADE A FINAL DECISION ABOUT WHICH EXTRACTION ALTERNATIVE WILL BE USED, AND WHETHER THIS IS THE ALTERNATIVE UPON WHICH THE COST ESTIMATES WERE BASED.

DWP RESPONSE:

THE EXTRACTION ALTERNATIVE DISCUSSED AT THE HEARING IS THE ONE WHICH HAS BEEN CHOSEN AS THE SYSTEM TO BE USED IN CONJUNCTION WITH THE GROUND WATER TREATMENT FACILITY. EPA HAS REVIEWED THIS ALTERNATIVE AND BELIEVES IT WILL MOST EFFECTIVELY HALT PLUME MIGRATION.

20. ONE COMMENTER ASKED FOR INFORMATION REGARDING THE COSTS OF DISPOSAL OF SPENT CARBON.

DWP RESPONSE:

THE COST IS INCLUDED IN THE OUF'S REPORT. THE CARBON COSTS ARE GREATER FOR WATER TREATMENT THAN FOR AIR TREATMENT. THE REASON IS THAT THE STREAM OF CONTAMINANTS IS LESS CONCENTRATED FOR THE AIR SYSTEM, REQUIRING LESS CARBON TO REMOVE THE SAME AMOUNT OF CONTAMINANTS. THERE IS PHYSICALLY MORE CARBON IN THE WATER SYSTEM, SO THE COSTS ARE HIGHER FOR THAT ALTERNATIVE. THE ANNUAL DISPOSAL COST FOR CARBON RANGES FROM \$283,500 TO \$356,000 IF THE CARBON IS NOT REGENERATED. IF THE CARBON IS REGENERATED, THE ANNUAL DISPOSAL COSTS RANGE FROM \$108,950 TO \$123,950.

21. CBE BELIEVES THAT THE COST COMPARISON FOR THE THREE ALTERNATIVES IS INADEQUATE. THE ANALYSIS FOCUSES ONLY ON THE HIGHEST COST ESTIMATE FOR EACH ALTERNATIVE, INSTEAD OF ON THE RANGE OF ESTIMATES AS PRESENTED IN APPENDIX 10.

DWP RESPONSE:

ANY OBJECTIVE METHOD OF COMPARING TREATMENT ALTERNATIVE COSTS (RANGE AVERAGING, ETC.) WOULD HAVE RESULTED IN THE SAME COST RANKING FOR EACH ALTERNATIVE. THE OUF'S LAID OUT THE RANGE OF COSTS, AND EPA CONSIDERED THE RANGE IN MAKING ITS DECISION.

22. CBE NOTED THAT ONLY THE HIGHEST ESTIMATED PROJECT COSTS WERE PRESENTED IN THE EXECUTIVE SUMMARY. CBE BELIEVES THAT THE RANGE OF COSTS SHOULD BE PRESENTED.

DWP RESPONSE:

THE EXECUTIVE SUMMARY PROVIDES A SYNOPSIS OF THE OVERALL OUF'S REPORT. THE HIGHEST COSTS WERE USED TO PROVIDE A GENERAL INDICATION OF OVERALL DIFFERENCES IN THE COST OF VARIOUS ALTERNATIVES. INDIVIDUALS INTERESTED IN MORE DETAILED COST ESTIMATES SHOULD REFER TO THE BODY OF THE OUF'S REPORT. EPA PREFERS THAT THE HIGHEST REASONABLE COST ESTIMATES BE REPORTED IN ORDER TO PROVIDE A CONSERVATIVE ESTIMATE OF TOTAL PROJECT COSTS. IN ALL PROBABILITY, THE ACTUAL COSTS OF THE GROUND WATER TREATMENT FACILITY WILL NOT BE THAT HIGH.

23. CBE NOTED THAT THE COST-EFFECTIVENESS DISCUSSION IN THE OUF'S ONLY CONSIDERS THE COST OF REPLACING WELLS THAT MIGHT HAVE TO BE REPLACED BECAUSE OF FUTURE CONTAMINATION. CBE BELIEVES THAT THE COST OF THE "NO ACTION" ALTERNATIVE SHOULD REFLECT THE COSTS OF REPLACING THE ENTIRE GROUND WATER SUPPLY, WHICH IS APPROXIMATELY \$20 MILLION.

DWP RESPONSE:

COMMENT ACKNOWLEDGED; REFER TO PAGE 32 OF THE OUF'S REPORT.

24. CBE NOTED THAT THE OUF'S INCONSISTENTLY USES HIGH OR AVERAGE COSTS FOR THE VARIOUS ALTERNATIVES. CBE BELIEVES THE REPORT SHOULD CONSISTENTLY USE ONE SET OF COSTS TO AVOID MISLEADING THE READERS. ADDITIONALLY, CBE STATED THAT THE SUMMARY DATA FOR THE ALTERNATIVE TREATMENT COSTS SHOULD BE PRESENTED AS A RANGE OF COSTS PER 1,000 GALLONS, AND THAT THE OUF'S SHOULD INCLUDE A DISCUSSION ON THE VARIABILITY FOUND IN THE GRANULATED ACTIVATED CARBON (GAC) COST ESTIMATES.

DWP RESPONSE:

THE PURPOSE OF THE COST ANALYSIS WAS TO DEVELOP THE PROBABLE RANGE OF COSTS FOR EACH ALTERNATIVE AND TO RANK THE ALTERNATIVES ACCORDINGLY. AS MENTIONED IN THE RESPONSE TO COMMENT #21, THIS RANKING WOULD NOT CHANGE REGARDLESS OF HOW THE COSTS WERE PRESENTED (RANGE, AVERAGE, ETC.). IN FACT, PROBABLE OR POTENTIAL COSTS ARE NOT EVEN CONSIDERED IN THE TECHNICAL EVALUATION (SECTION V), NOR ARE COSTS DISCUSSED IN THE SUMMARY OF RECOMMENDED REMEDIAL ALTERNATIVES (SECTION VIII). A PREVIOUS DRAFT OF THE DOCUMENT DID IN FACT REPORT ONE SET OF COSTS. COST RANGES WERE ADDED IN ACCORDANCE WITH A REQUEST FROM THE EPA. THE REPORTED COST VARIABILITY OF VIRGIN ACTIVATED CARBON (18 PERCENT) IS NOT EXCESSIVE AND DOES NOT CONTRIBUTE SUBSTANTIALLY TO THE HIGH-END COST OF THE GAC ALTERNATIVE. THEREFORE, A DETAILED DISCUSSION WAS NOT DEVELOPED.

C. TECHNICAL ISSUES

25. ONE COMMENTER ASKED THE DIRECTION AND THE RATE OF MOVEMENT OF THE CONTAMINANT PLUMES.

DWP RESPONSE:

THE PLUMES IN THE NORTH HOLLYWOOD AREA ARE MOVING IN A SOUTHEASTERLY DIRECTION AT A RATE OF 300-500 FEET PER YEAR. AT THIS RATE, DWP EXPECTS THAT APPROXIMATELY TWO GROUND WATER WELLS PER YEAR WILL BECOME CONTAMINATED, EVEN IF ACTION IS TAKEN.

26. ONE COMMENTER ASKED WHETHER EPA HAS CONSIDERED USING A TREATMENT METHOD THAT WOULD REMOVE TRIHALOMETHANE (THM) PRECURSORS AS WELL AS VOCs.

DWP RESPONSE:

THM PRECURSORS ARE TYPICALLY ORGANIC SUBSTANCES SUCH AS DECAYING PLANT MATTER. THMS RESULT FROM DISINFECTION PROCESSES THAT CHLORINATE THESE MATERIALS. FOR THE GROUND WATERS IN THE STUDY AREA, AND GROUND WATERS IN GENERAL, THM PRECURSORS (AND THMS) ARE PRACTICALLY NONEXISTENT. THEREFORE, THESE CHEMICALS WERE NOT CONSIDERED IN THE DEVELOPMENT OF TREATMENT ALTERNATIVES.

27. ONE COMMENTER ASKED WHICH CONTAMINANTS WOULD NOT BE REMOVED EFFECTIVELY BY THE SEVERAL TREATMENT ALTERNATIVES DESCRIBED (AERATION, GAC, AND OZONATION).

DWP RESPONSE:

APPROXIMATELY 12 ORGANIC CONTAMINANTS WERE FOUND IN THE GROUND WATER, BUT ONLY TCE AND PCE WERE PRESENT IN SIGNIFICANT CONCENTRATIONS. TCE IS THE CHEMICAL USED AS THE "INDICATOR CHEMICAL" FOR THE AERATION ALTERNATIVE BECAUSE IT IS THE MOST WIDESPREAD CONTAMINANT. FOR THE ULTRAVIOLET (UV) OZONE TREATMENT ALTERNATIVE, THERE IS A CLASS OF HIGH MOLECULAR WEIGHT COMPOUNDS THAT ARE ALMOST COMPLETELY UNAFFECTED BY ANY COMBINATION OF UV LIGHT AND OZONATION. LONG-CHAIN ALKANES (E.G., GASOLINE) AND LONG-CHAIN ALIPHATIC COMPOUNDS ARE EXAMPLES OF THIS CLASS OF COMPOUNDS.

28. ONE COMMENTER ASKED EPA TO CLARIFY THE DIFFERENCE BETWEEN THE ALTERNATIVE PROPOSED IN THE FINAL OUFs AND THE PREVIOUS RECOMMENDATION.

DWP RESPONSE:

THE PROJECT IS ESSENTIALLY THE SAME WITH REGARD TO THE DESIGN OF THE FACILITY, THE SIZE, AND THE ENVIRONMENTAL EFFECTS. SINCE EPA HAS REQUIRED THE DEPARTMENT TO MEET MCLS, BLENDING HAS BEEN ELIMINATED AS A METHOD OF OBTAINING MCLS AT THE TOWER. THE REMEDY WILL MEET MCLS WITHOUT BLENDING.

29. ONE COMMENTER ASKED WHAT THE RATE OF WATER TREATMENT WOULD BE.

DWP RESPONSE:

THE PROJECT IS DESIGNED TO PUMP 2,000 GPM THROUGH THE AERATION FACILITY. THE QUANTITY OF WATER IS NOT THE SIGNIFICANT FACTOR IN THE FACILITY, HOWEVER. THE PRIMARY OBJECTIVE OF THE FACILITY IS THAT THE PROCESS DRAWS THE CONTAMINATED PLUMES AWAY FROM THE UNCONTAMINATED WELLS AND PREVENTS THE CONTAMINATION OF OTHER WELLS IN THE AREA. A SIDE BENEFIT IS THAT THE WATER WILL BE TREATED AND RETURNED TO THE DISTRIBUTION SYSTEM.

30. ONE COMMENTER ASKED HOW LONG THE AERATION PROCESS WOULD BE NECESSARY.

DWP RESPONSE:

THERE IS MUCH UNCERTAINTY INVOLVED IN THIS PROJECTION. THE AGENCY ANTICIPATES THAT THE TOWER MAY BE OPERATING FOR AS MANY AS 15 YEARS. IT TOOK 40 OR 50 YEARS FOR THE CONTAMINATION TO BECOME THIS SEVERE, AND CLEANUP MAY TAKE EVEN LONGER.

31. SEVERAL COMMENTERS NOTED THAT THE EARLIER MODEL OF THE GAC VAPOR PHASE WAS PERMITTED AT 90 PERCENT REMOVAL EFFICIENCY -- THAT IS, IT CAN EMIT 2 POUNDS PER DAY. THE COMMENTERS ASKED WHETHER THE CURRENT PROPOSAL WOULD BE PERMITTED AT 99 PERCENT REMOVAL EFFICIENCY.

DWP RESPONSE:

AT THE FIRST TWO PUBLIC MEETINGS, AERATION WAS THE ONLY TREATMENT METHOD DISCUSSED. BETWEEN THE SECOND AND THIRD MEETINGS, HOWEVER, THE DWP BOARD OF COMMISSIONERS DECIDED TO ADD THE GAC FILTER ON THE AIRSTREAM. BY ADDING THE GAC FILTER, THE PERMITTED EMISSIONS WERE REDUCED TO A MAXIMUM OF 2 POUNDS PER DAY, WHICH IS THE AMOUNT IN THE CURRENT SCAQMD PERMIT. THE SCAQMD HAS PERMITTED THE REMOVAL EFFICIENCY OF THE GAC SYSTEM AT A MINIMUM OF 90 PERCENT. THE FACILITY WILL BE MONITORED TO ENSURE THAT THIS REMOVAL EFFICIENCY OR BETTER IS ACHIEVED.

THE AGENCIES' PRIMARY GOAL IS TO MEET THE MCL OBJECTIVE OF 5 PPB, ALTHOUGH THE DESIGN OF THE AERATION TOWER ITSELF MAY ALLOW OPERATION AT HIGHER EFFICIENCIES. DWP CAN DO THAT BY OPERATING AT HIGHER EFFICIENCIES OR BY CONTROLLING THE CONTAMINANT LEVEL THAT COMES INTO THE AERATION TOWER. THE TOWER WILL BE OPERATED AS EFFICIENTLY AS POSSIBLE.

32. ONE COMMENTER ASKED WHAT BECAME OF THE SPENT, CONTAMINATED CARBON FROM THE GAC PROCESS.

DWP RESPONSE:

THE SPENT CARBON CAN EITHER BE DISPOSED AT AN APPROVED HAZARDOUS WASTE FACILITY OR CAN BE REACTIVATED OFF-SITE.

33. CSDW EXPRESSED CONCERN THAT, ALTHOUGH THE OUFSS STATES THAT MCLS WILL BE MET, THERE IS NO CHANGE IN THE FACILITY DESIGN TO ENSURE THOSE LEVELS IN THE FINAL OUFSS.

DWP RESPONSE:

THE DESIGN OF THE FACILITY WAS CHANGED BY ADDING TWO FEET OF PACKING MATERIAL AS AN ADDITIONAL SAFETY FACTOR TO ENSURE THAT THE MCL WILL BE ATTAINED. IN ADDITION, THE OPERATION AND MAINTENANCE PLAN FOR THE FACILITY WILL SPECIFY CHANGES TO OPERATIONAL PARAMETERS THAT WILL ALLOW THE FACILITY TO ATTAIN MCLS AT ALL TIMES.

34. CSDW ASKED HOW OFTEN THE TOWER WOULD BE MONITORED TO ENSURE THE WATER HAS BEEN CLEANED TO MCLS.

DWP RESPONSE:

ALTHOUGH THE MONITORING SCHEDULE FOR THE FACILITY HAS NOT BEEN COMPLETED, IT WILL CONSIST OF PERIODIC SAMPLING OF PLANT INFLUENT/EFFLUENT CONTAMINANT CONCENTRATIONS, AIR EMISSIONS, AND ACTIVATED CARBON. THE FREQUENCY OF THIS SAMPLING WILL BE DETAILED IN THE FACILITY OPERATION AND MAINTENANCE PLAN NOW BEING DEVELOPED.

35. CSDW NOTED THAT DWP EXPECTS THE TOWER TO TREAT WATER WITH CONTAMINATION OF 200 PPB, ALTHOUGH SOME SAMPLES HAVE BEEN TAKEN THAT INDICATE CONTAMINANT LEVELS OF 650 PPB. CSDW BELIEVES THAT DWP SHOULD PLAN FOR A FACILITY THAT CAN TREAT THE MORE HIGHLY CONTAMINATED WATER TO ENSURE THAT MCLS ARE OBTAINED.

DWP RESPONSE:

THE AERATION FACILITY IS DESIGNED TO TREAT GROUND WATER FROM CONTAMINANT LEVELS OF 650 PPB TO OR BELOW MCLS.

36. CSDW AND FHCA NOTED THAT THE TOP SOIL UNDER THE TOWER WOULD BE VERY CORROSIVE TO STEEL, AND ASKED WHETHER THIS WOULD ADVERSELY AFFECT THE AERATION TOWER. THE COMMENTER ALSO ASKED WHETHER DWP HAD IDENTIFIED THE "WET, STICKY, HONEY-COLORED SUBSTANCE" THAT WAS CONTAMINATING THE TOP SOIL AT THE SITE OF THE PROPOSED TOWER.

DWP RESPONSE:

THE TOP EIGHT FEET OF SOIL WILL BE REMOVED PRIOR TO CONSTRUCTION OF THE AERATION FACILITY AND REPLACED WITH COMPACTED FILL. THE REMAINING SOIL WILL HAVE NO ADVERSE EFFECT ON THE AERATION TOWER, SINCE A CONCRETE PAD WILL SEPARATE ALL FACILITY COMPONENTS FROM THE SOIL.

THE "WET, STICKY, HONEY-COLORED SUBSTANCE" WAS ANALYZED FOR TCE AND PCE AND FOUND TO CONTAIN NEITHER. IF NECESSARY, ADDITIONAL SOIL ANALYSES WILL BE CONDUCTED.

37. CSDW ASKED WHETHER DRILLING MORE MONITORING WELLS ON THE SITE WOULD PRESENT ANY PROBLEMS WITH FURTHER CONTAMINATION OF GROUND WATER DUE TO EXCESSIVE DRILLING.

DWP RESPONSE:

HYDROGEOLOGY WILL BE ASSESSED AND STUDIED PRIOR TO WELL INSTALLATION TO ENSURE THAT CONSTRUCTION OF THE EXTRACTION SYSTEM WILL NOT ACT AS A CONDUIT FOR CONTAMINATION OF THE LOWER GROUND-WATER AQUIFER.

38. ONE COMMUNITY MEMBER ASKED DWP TO CONTINUE CONSIDERING THE USE OF OZONE TREATMENT IN FUTURE CLEANUP EFFORTS.

DWP RESPONSE:

PRESENTLY, DWP IS WORKING IN CONJUNCTION WITH THE UNIVERSITY OF CALIFORNIA AT LOS ANGELES IN EXAMINING THE UV/OZONE AND PEROXIDE/OZONE TECHNOLOGIES AS TREATMENT PROCESSES. DWP WILL CONTINUE TO EVALUATE TREATMENT ALTERNATIVES IN ORDER TO IDENTIFY RELIABLE AND EFFICIENT METHODS OF TREATMENT.

39. A MEMBER OF THE SIERRA CLUB ASKED WHETHER DWP HAD CONSIDERED CONSTRUCTING TWO TOWERS ON AN EXPERIMENTAL BASIS: ONE USING ACTIVATED CHARCOAL IN THE AERATION PHASE AND THE OTHER USING THE ACTIVATED CHARCOAL IN THE WATER PHASE. IF NOT, THE COMMENTER ASKED WHETHER DWP WOULD CONSIDER DOING SO AT SOME TIME DURING THE PROJECT IN ORDER TO GAIN DIRECT EXPERIENCE WITH THESE ALTERNATIVE METHODS.

DWP RESPONSE:

THIS TYPE OF INVESTIGATION WAS NOT CONSIDERED, IN PART, BECAUSE IT WOULD BE COSTLY AND CONSTITUTES A RESEARCH ACTIVITY RATHER THAN A REMEDIAL ACTIVITY. HOWEVER, TASK 5 OF THE REMEDIAL INVESTIGATION MAY INVOLVE STUDIES OF THIS KIND AT A BENCH-SCALE OR TREATABILITY LEVEL. BOTH TECHNOLOGIES HAVE BEEN DEMONSTRATED TO BE EFFECTIVE AT REMOVAL OF CONTAMINANTS.

40. CSDW ASKED WHETHER THE AERATION TOWER WOULD BE ABLE TO OPERATE AT 99 PERCENT REMOVAL CAPABILITY IF CONTAMINANT LEVELS EXCEED THE LEVEL OF 500 PPB THAT IS ANTICIPATED.

DWP RESPONSE:

YES. THE FACILITY WILL BE OPERATED TO ATTAIN MCLS REGARDLESS OF THE INFLUENT CONCENTRATION.

41. CSDW NOTED THAT THE OUFSS DOES NOT SPECIFY THE REMOVAL EFFICIENCY OF THE CARBON FILTER. CSDW BELIEVES THAT THE CARBON FILTRATION SYSTEM MUST BE DESIGNED TO REMOVE THE MAXIMUM AMOUNT OF CONTAMINATION, AND THAT THIS DESIGN OBJECTIVE MUST BE SPECIFICALLY STATED IN THE OUFSS.

DWP RESPONSE:

THE OPERATIONAL EFFICIENCY OF THE ACTIVATED CARBON AIR FILTERS IS THEORETICALLY 100 PERCENT PROVIDING THAT CONTAMINANT BREAKTHROUGH IS NOT IMMINENT. ADSORPTION DATA PROVIDED BY SEVERAL CARBON SUPPLIERS, COMBINED WITH THE RESULTS OF PUBLISHED PILOT PLANT STUDIES, INDICATE THAT THE AMOUNT OF CONTAMINANT ESCAPING THE PROPOSED FACILITY VIA AIR WILL BE AT OR ABOUT NON-DETECTABLE

LEVELS. HOWEVER, THERE IS INSUFFICIENT EVIDENCE TO JUSTIFY A GUARANTEE OF 100 PERCENT REMOVAL. THE MAXIMUM PERMITTED EMISSIONS FROM THE SCAQMD IS 2 POUNDS PER DAY. ALTHOUGH THE TECHNOLOGY IS RELIABLE, THE SCAQMD GENERALLY SPECIFIED REMOVAL EFFICIENCIES FOR PERMITTED FACILITIES (NOTABLY DRY-CLEANING OPERATIONS) AT BELOW 100 PERCENT AS A CONTINGENCY FOR THIS UNCERTAINTY. THIS IS AN ESTABLISHED LIMIT OF THE TECHNOLOGY.

42. ONE COMMENTER BELIEVES THAT DWP DID NOT PERFORM AN ADEQUATE EVALUATION OF OTHER TREATMENT ALTERNATIVES. SPECIFICALLY, COMMUNITY MEMBERS REQUESTED THAT DWP INVESTIGATE THE POSSIBILITY OF CARBON FILTRATION AT THE WELLHEAD, WHICH WOULD NOT RESULT IN FURTHER DEGRADATION OF THE AIR QUALITY AT THE SITE.

DWP RESPONSE:

WELLHEAD TREATMENT BY ANY APPLICABLE TECHNOLOGY WAS NOT CONSIDERED AS AN OPTION BECAUSE IT IS MORE COST-EFFECTIVE TO CONSTRUCT A SINGLE FACILITY TO TREAT MULTIPLE SUPPLY SOURCES. DWP RECOGNIZES, HOWEVER, THE POTENTIAL USEFULNESS OF THIS METHOD FOR A LIMITED NUMBER OF WELLS, AND IS CURRENTLY INVESTIGATING THE USE OF WELLHEAD CARBON TREATMENT AT ITS HEADWORKS WELL FIELD. THIS ALTERNATIVE WILL BE CONSIDERED IN THE OVERALL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY. FOR THE OUFS, OUR GOAL IS TO CONTAIN AND RETRACT THE PLUME. WELLHEAD TREATMENT WOULD NOT ACHIEVE THIS GOAL.

43. FHCA ASKED WHETHER THE DESIGN SPECIFICATIONS FOR THE TOWER OF A 2,000 GALLON PER MINUTE TREATMENT RATE WOULD ALLOW SUFFICIENT CONTACT BETWEEN THE CHARCOAL AND WATER FOR ADEQUATE CONTAMINANT REMOVAL.

DWP RESPONSE:

THE AERATION FACILITY HAS BEEN DESIGNED TO MEET REQUIRED MCLS. THE CONTACT TIME BETWEEN THE GROUND WATER AND PACKING MEDIA (NOT CHARCOAL) HAS BEEN CONSIDERED IN THE DESIGN AND DETERMINED ADEQUATE.

44. CBE ASKED THAT THE WORD "MAINTAIN" BE DEFINED IN THE SENTENCE IN THE OUFS, PAGE 25, SECOND PARAGRAPH, WHICH READS "...DWP IMPLEMENTED A PROGRAM OF BLENDING TO MAINTAIN THE GROUND WATER SUPPLY AS MUCH AS POSSIBLE.".

DWP RESPONSE:

UNLIKE THE CITIES OF BURBANK AND GLENDALE, WHICH WERE FORCED TO SHUT DOWN NUMEROUS WELLS AND PURCHASE REPLACEMENT WATER SUPPLIES, DWP IMPLEMENTED A PROGRAM OF BLENDING, APPROVED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES, IN ORDER TO "MAINTAIN" PREVIOUS LEVELS OF WATER SUPPLY AND AVOID INCREASED PURCHASES OF METROPOLITAN WATER DISTRICT SUPPLIES. "MAINTAIN" REFERS TO THE FACT THAT DWP WAS ABLE TO OBTAIN THE SAME VOLUME OF WATER FROM THE AQUIFER, RATHER THAN USING OTHER SOURCES OF WATER.

45. CBE ASKED FOR THE MEANING OF THE PHRASE, "VALUE OF GROUND WATER AND HOW IT IS BEING ERODED" ON PAGE 25, SECOND PARAGRAPH, OF THE OUFS.

DWP RESPONSE:

DURING A NORMAL YEAR, DWP EXTRACTS AN AVERAGE OF 102,000 ACRE-FEET OF GROUNDWATER WHICH IT SERVES TO APPROXIMATELY ONE MILLION CUSTOMERS, MAKING THIS GROUND WATER A VALUABLE RESOURCE BOTH ECONOMICALLY AND FOR HUMAN CONSUMPTION. IF THE SPREAD OF CONTAMINATION CANNOT BE CONTROLLED, THEN THE VALUE OF THE GROUND WATER RESOURCE IS SIGNIFICANTLY DIMINISHED.

46. CBE BELIEVES THAT THE OPENING STATEMENT ON PAGE 40 OF THE OUFS, REFERRING TO THE "PROBLEMS ASSOCIATED WITH THE PREVIOUS METHODS," IS VAGUE AND SHOULD BE ELIMINATED OR CLARIFIED WITH SPECIFIC EXAMPLES.

DWP RESPONSE:

"PREVIOUS METHODS" REFERS TO EXTRACTION, BLENDING, AND DISPOSAL. THE PROBLEMS ASSOCIATED WITH EXTRACTION, BLENDING AND DISPOSAL ARE DISCUSSED EXPLICITLY AND WITH EXAMPLES ON PAGES 35-39. THE OUFS REPORT ADDENDUM WILL CLARIFY THIS STATEMENT FURTHER.

47. CBE STATED THAT THE LAST SENTENCE OF THE FIRST PARAGRAPH ON PAGE 50 OF THE OUF, DESCRIBING AN ASSUMPTION ABOUT THE FUTURE USE OF BLENDING, IS AN UNSUPPORTED COMMENT AND SHOULD BE REMOVED.

DWP RESPONSE:

UNDER THE SAFE DRINKING WATER ACT, BLENDING OF CONTAMINATED GROUNDWATER WITH OTHER SOURCES OF WATER IS AN ACCEPTABLE METHOD BY WHICH TO ATTAIN THE STANDARDS (MCL). THE GOAL OF THE SUPERFUND PROGRAM IS TO COMPLY WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS UNDER OTHER ENVIRONMENTAL STATUTES. THUS, IN SOME INSTANCES, BLENDING MAY BE APPROPRIATE. HOWEVER, FOR THE NORTH HOLLYWOOD AERATION FACILITY, EPA HAS DETERMINED THAT BLENDING WILL NOT BE USED TO ATTAIN MCL. THE AERATION FACILITY WILL TREAT CONTAMINATED GROUND WATER TO THE MCL BEFORE THE WATER IS INTRODUCED INTO THE DISTRIBUTION SYSTEM.

48. CBE BELIEVES THAT THE IMPLEMENTABILITY SECTIONS OF THE OUF FOR LIQUID PHASE GAC AND GAC/AERATION OPTIONS CONTAIN VERY LITTLE DATA OR SUPPORTING REFERENCES. THE COMMENTER BELIEVES THE INFORMATION GIVEN IS INSUFFICIENT TO COMPARE THE IMPLEMENTABILITY OF THE THREE OPTIONS.

DWP RESPONSE:

THE IMPLEMENTABILITY ANALYSIS FOR EACH OF THE ALTERNATIVES DISCUSSED WAS NECESSARILY BRIEF DUE TO THE SPARSITY OF AVAILABLE INFORMATION. THE GAC ALTERNATIVE WAS RANKED LOWEST IN IMPLEMENTABILITY PRIMARILY BECAUSE OF PROJECT CONSTRUCTION AND OPERATION CONSTRAINTS, ALTHOUGH DWP ACKNOWLEDGES THAT FUTURE STUDIES MAY DEMONSTRATE THAT THESE CONCERNS ARE UNFOUNDED. AT THE TIME OF OUF REPORT PREPARATION, GAC TIME CONSTRAINTS WERE VIEWED FROM THE FOLLOWING PERSPECTIVES.

PILOT STUDIES - ALTHOUGH THE ABILITY OF GAC SYSTEMS TO REMOVE TCE AND PCE IS WELL-DOCUMENTED, THE DEGREE AND EFFICIENCY OF TREATMENT FOR SAN FERNANDO BASIN GROUND WATERS WOULD HAVE TO BE DETERMINED BY PILOT STUDIES. IN EVERY EXAMPLE OF THIS TECHNOLOGY THAT DWP REVIEWED, GAC TREATMENT INVOLVED A PILOT STUDY. SUCH STUDIES ARE NECESSARY TO ESTABLISH SINGLE- AND MULTIPLE-COMPONENT ADSORPTION AND REACTION RATE CONSTANTS FOR EACH GROUND-WATER CONTAMINANT. THE PRIMARY DIFFICULTY IS THAT EVEN A LONG-TERM (SIX MONTHS OR MORE) PILOT STUDY WILL GENERALLY NOT EXPERIENCE THE FULL RANGE OF EXPECTED CONTAMINANT CONCENTRATIONS, SO THAT DATA EXTRAPOLATION MUST BE USED TO ESTIMATE GAC CONCENTRATION. THIS RESULTS IN A CONSIDERABLE DEGREE OF UNCERTAINTY WITH REGARD TO ACTIVATED CARBON LIFE AND REMOVAL/DISPOSAL/REGENERATION SCHEDULES. IT IS ONLY FAIR TO REMARK THAT THE SAME CONCERNS ATTEND THE AERATION/GAC ALTERNATIVE. HOWEVER, IN THE AERATION/GAC PROCESS, THE QUANTITY OF GAC REQUIRED IS ORDERS OF MAGNITUDE LESS AND THE AIR-PHASE CONTAMINANT REMOVAL MECHANISM IS BETTER-KNOWN THAN ITS LIQUID-PHASE GAC COUNTERPART.

CARBON SUPPLY - AS OF THIS DATE (AUGUST, 1987), DWP HAS EXPERIENCED DIFFICULTY IN FINDING A CARBON SUPPLIER THAT WILL GUARANTEE EITHER A LONG-TERM SUPPLY OF ACTIVATED CARBON OR CARBON DISPOSAL/REGENERATION SERVICES. THE AMOUNT OF CARBON REQUIRED FOR THE GAC ALTERNATIVE IS ON THE ORDER OF HUNDREDS OF THOUSANDS OF POUNDS PER YEAR. UNCERTAINTIES IN THE SUPPLY OR REMOVAL/DISPOSAL/REGENERATION OF THIS MATERIAL TRANSLATES INTO IMPLEMENTATION PROBLEMS FOR THE GAC ALTERNATIVE.

D. REMEDIAL ALTERNATIVE PREFERENCE ISSUES

49. CBE BELIEVES THAT LIQUID-PHASE GAC IS THE BEST TREATMENT OPTION BECAUSE IT MOST CONSISTENTLY REDUCES CONTAMINANT LEVELS TO THE RMCL.

DWP RESPONSE:

COMMENT ACKNOWLEDGED, HOWEVER, THE DWP CONSIDERS THE RMCL TREATMENT CLAIM TO BE UNSUBSTANTIATED. PLEASE REFER TO COMMENT #48 FOR ELABORATION ON LIQUID-PHASE GAC TECHNOLOGY.

50. CBE BELIEVES THE GAC SYSTEM SHOULD BE PERMITTED AT 99 PERCENT REMOVAL EFFICIENCY, AND THAT THOROUGH MONITORING BE CONDUCTED TO ENSURE THAT THE SYSTEM IS WORKING AS IT IS PERMITTED.

DWP RESPONSE:

THE SCAQMD HAS PERMITTED THE REMOVAL EFFICIENCY OF THE GAC SYSTEM AT A MINIMUM OF 90 PERCENT. THE FACILITY WILL BE MONITORED TO ENSURE THAT THE REMOVAL EFFICIENCY OR BETTER IS ACHIEVED.

51. CSDW AND CBE ASKED WHETHER EPA OR DWP HAD CONSIDERED SEVERAL RECENT STUDIES INDICATING THAT INHALATION AND SKIN ABSORPTION OF TCE AND PCE CAN RESULT IN SIGNIFICANT HEALTH EFFECTS.

DWP RESPONSE:

SINCE EXPOSURE PATHWAYS WERE CONSIDERED AS EQUIVALENT TO THE INGESTION PATHWAY IN TERMS OF HEALTH IMPACT.

52. A SPOKESPERSON FOR CITY COUNCILMAN WACHS STATED THAT THE COUNCILMAN SUPPORTS THE PROPOSED AERATION TOWER WITH THE ADDITION OF CARBON FILTERS, ALTHOUGH HE DOUBTS THE SYSTEM CAN HALT THE SPREAD OF CONTAMINATION.

DWP RESPONSE:

COMMENT ACKNOWLEDGED. MODELLING INDICATES THAT THE PUMPING CONFIGURATION WILL HALT OR RETARD THE SPREAD OF CONTAMINATION.

53. A SPOKESPERSON FOR LOS ANGELES CITY COUNCILMAN BERNARDI EXPRESSED THE COUNCILMAN'S SUPPORT FOR THE GAC FILTRATION SYSTEM FOR TREATING AIR EMISSIONS. THE COUNCILMAN BELIEVES THAT AN ENVIRONMENTAL IMPACT REPORT (EIR) IS STILL NEEDED FOR THE PROJECT, TO CONFORM WITH STATE REQUIREMENTS AND TO PREVENT POSSIBLE LITIGATION AND ACCOMPANYING DELAYS.

DWP RESPONSE:

COMMENT ACKNOWLEDGED. DWP HAS DETERMINED THAT THIS PROJECT WILL NOT HAVE SIGNIFICANT IMPACT ON AIR QUALITY AND THUS FELT JUSTIFIED IN CONSIDERING A NEGATIVE DECLARATION FOR THE PROPOSED PROJECT. IN ADDITION, EPA HAS DETERMINED THAT THE OUF'S PROCESS IS SUBSTANTIALLY EQUIVALENT TO THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA), WHICH IS THE FEDERAL EQUIVALENT OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA).

54. FHCA BELIEVES THAT THE ONLY VIABLE TREATMENT ALTERNATIVES ARE THE GAC METHODS AND THE AERATION TOWER, SINCE THE ULTRAVIOLET/OZONE TREATMENT IS NOT FEASIBLE AT THE DESIGN LEVELS REQUIRED BY DWP. THE COMMENTER FURTHER STATED THAT IT WILL BE NECESSARY TO MONITOR THE FLOW FROM THE SHALLOW WELLS TO ENSURE THE PROPER TREATMENT RATE IS MAINTAINED.

DWP RESPONSE:

DWP AGREES THAT THE UV/OZONE TREATMENT PROCESS IS NOT APPROPRIATE FOR THE DESIGN OF THIS FACILITY, ALTHOUGH DWP WILL CONTINUE TO MONITOR OR CONDUCT STUDIES TO BETTER UNDERSTAND THE OZONE TECHNOLOGIES FOR FUTURE USE AT THE DESIGN LEVEL.

THE FLOW FROM THE SHALLOW WELLS WILL BE CONSISTENTLY MONITORED TO ENSURE THAT A PROPER FLOWRATE IS MAINTAINED.

55. A REPRESENTATIVE OF HEATHERDALE HOME, A SENIOR CITIZEN COMPLEX NEAR THE SITE OF THE PROPOSED AERATION TOWER, STATED THAT A RECOGNIZED TOXICOLOGIST VIEWS THE AIR EMISSIONS FROM THE TOWER AS A THREAT TO PUBLIC HEALTH. THE COMMENTER BELIEVES DWP SHOULD RESPOND TO THIS HEALTH THREAT AND PLACE THE AIR FILTERS ON THE AERATION TOWER ACCORDINGLY.

DWP RESPONSE:

COMMENT ACKNOWLEDGED. THE PROPOSED REMEDY INCLUDES CARBON AIR FILTERING UNITS TO CONTROL AIR EMISSIONS.

56. A REPRESENTATIVE OF THE UNIVERSAL CITY-NORTH HOLLYWOOD CHAMBER OF COMMERCE SUPPORTS THE CONSTRUCTION OF THE AERATION TOWER WITH THE ADDITION OF THE CARBON FILTRATION SYSTEM.

DWP RESPONSE:

COMMENT ACKNOWLEDGED.

57. CBE STATED THAT TWO POTENTIAL BENEFITS OF THE GAC ALTERNATIVE WERE NOT ADDRESSED BY THE OUF'S. FIRST, THE USE OF A CENTRALIZED GAC UNIT WOULD COMPARE FAVORABLY TO SEVERAL DECENTRALIZED

UNITS WHEN CONSIDERING THE EXTENSIVE GROUND-WATER EXTRACTION THAT WILL BE NECESSARY TO CLEAN UP THE NUMEROUS PLUMES IN THE SAN FERNANDO VALLEY. SECOND, THE USE OF GAC TO TREAT EFFLUENT FROM THE AERATION TOWER WOULD ENHANCE DWP'S ABILITY TO OPERATE A LARGE-SCALE GAC TREATMENT UNIT. THE COMMENTER BELIEVES THAT IF THESE BENEFITS HAD BEEN CONSIDERED, THE USE OF GAC TO TREAT THE EFFLUENT FROM THE EXTRACTION SYSTEM WOULD HAVE BEEN THE CHOSEN ALTERNATIVE, RATHER THAN THE AERATION/GAC ALTERNATIVE.

DWP RESPONSE:

THE USE OF A CENTRALIZED TREATMENT FACILITY IS VERY ATTRACTIVE, AND THE DWP ACKNOWLEDGES A PREFERENCE FOR THIS TYPE OF APPROACH. THE FINAL REMEDIAL SOLUTION FOR THE FOUR NPL SITES MAY INDEED INVOLVE A CENTRALIZED TREATMENT FACILITY. BEING AN INTERIM ACTION, HOWEVER, THE AERATION/GAC PROJECT IS PROPOSED TO HALT FURTHER SPREAD OF CONTAMINATION. BY PREVENTING FURTHER DEGRADATION OF THE GROUND WATER BASIN, THIS ACTION MAY PERMIT A SUBSEQUENT CENTRAL FACILITY TO BE CONSIDERED. HOWEVER, THE SCOPE OF THE PROBLEM MAKES IT MANDATORY THAT A MAJOR EFFORT BE DELAYED UNTIL THE REMEDIAL INVESTIGATION IS COMPLETED.

A RELATED COMMENT CONCERNS A PROPOSAL TO TREAT ALL DWP GROUND WATERS NOW RATHER THAN TREAT JUST THE MOST CONTAMINATED SUPPLIES, SO THAT ALL BLENDING OPERATIONS COULD BE DISPENSED WITH. THE DWP FEELS THAT THIS SCHEME IS PROBABLY THE PREFERRED SOLUTION TO THE PROBLEM, BUT MUST BE BASED ON A BASIN-WIDE REMEDIAL INVESTIGATION AND FEASIBILITY STUDY. EPA MUST SELECT A COST-EFFECTIVE REMEDY FOR THE PROJECT THAT IS CONSISTENT WITH THE NORTH HOLLYWOOD/BURBANK OPERABLE UNIT. THE OVERALL REMEDY MAY BE DIFFERENT FROM THE OPERABLE UNIT REMEDY.

58. CBE BELIEVES THAT THE HEALTH EFFECTS FROM THE AERATION-ONLY ALTERNATIVE WERE NOT SUFFICIENTLY ASSESSED. BECAUSE OF THE UNKNOWN CUMULATIVE EFFECTS OF THE AIR EMISSIONS, CBE BELIEVES THAT THE GAC COMPONENT OF THE PROPOSED TREATMENT ALTERNATIVE MUST BE PERMITTED AND OPERATED AT 99 PERCENT REMOVAL EFFICIENCY.

DWP RESPONSE:

THE CUMULATIVE AERATION-ONLY IMPACT ANALYSIS IS PRESENTED IN APPENDIX 9 OF THE OUFSS REPORT. ALSO, SEE RESPONSE TO COMMENT #41.

E. PROCESS ISSUES

59. ONE COMMENTER ASKED WHAT EPA AND DWP KNOW ABOUT THE SOURCES OF CONTAMINATION; WHAT ACTIONS ARE BEING TAKEN TO LOCATE THE SOURCES; AND WHAT ENFORCEMENT AND PROSECUTION ACTIONS, IF ANY, ARE BEING TAKEN REGARDING THOSE RESPONSIBLE FOR THE CONTAMINATION.

DWP RESPONSE:

EPA HAS ENFORCEMENT AUTHORITY IN THIS SITUATION. AT THIS POINT, THE SOURCES ARE UNKNOWN, BUT EPA HAS A LIST OF POSSIBLE SOURCES OF CONTAMINATION THAT IS BASED ON THE ACTIVITIES OF CERTAIN COMPANIES. EPA HAS ISSUED REQUESTS FOR INFORMATION, ALTHOUGH THE AGENCY HAS NOT YET IDENTIFIED SOURCES. WHEN SOURCES ARE IDENTIFIED, EPA POLICY IS TO INVOLVE POTENTIALLY RESPONSIBLE PARTIES (PRPS) IN INVESTIGATION AND CLEANUP ACTIVITIES, IF AT ALL POSSIBLE. EPA IS NOT TAKING ANY ENFORCEMENT ACTIONS AT THIS TIME; HOWEVER, THE AGENCY WILL BE COORDINATING WITH THE REGIONAL WATER QUALITY CONTROL BOARD TO IDENTIFY AND NEGOTIATE WITH PRPS.

60. ONE COMMUNITY MEMBER ASKED WHETHER DWP IS PLANNING ANY FUTURE OUFSS.

DWP RESPONSE:

NO OTHER PROJECTS ARE BEING CONSIDERED AT THIS TIME. THIS SHORT-TERM PROJECT, CALLED AN OPERABLE UNIT, IS BEING CONDUCTED THIS WAY BECAUSE IT IS AN EXPEDIENT MEANS OF STOPPING THE SPREAD OF CONTAMINATION. AT THE SAME TIME, DWP AND EPA ARE CONDUCTING A REMEDIAL INVESTIGATION OF THE ENTIRE SAN FERNANDO VALLEY. AS THE STUDY PROGRESSES, IF MORE PROBLEMS ARE DISCOVERED THAT COULD BE REMEDIED WITH A SHORT-TERM PROJECT SUCH AS THIS ONE, THE AGENCIES MAY CONDUCT ANOTHER OUFSS.

61. ONE COMMENTER ASKED WHY THE COMMUNITY WORK GROUP WAS NOT CHOSEN PRIOR TO THE DECEMBER 9, 1986 HEARING SO THAT GROUP MEMBERS COULD HAVE MADE A POINT OF ATTENDING THE HEARING.

DWP RESPONSE:

DWP AND EPA FIRST STARTED DISCUSSIONS OF THE TECHNICAL AND MANAGEMENT COMMITTEES AND THE COMMUNITY WORK GROUP IN JULY, 1986, TO INITIATE PUBLIC INVOLVEMENT IN THE PROJECT IN ACCORDANCE WITH EPA COMMUNITY RELATIONS REQUIREMENTS. BECAUSE SUPERFUND HAD NOT YET BEEN REAUTHORIZED, DWP BELIEVED THAT DEVELOPMENT OF THESE GROUPS WAS PREMATURE DUE TO THE POSSIBILITY THAT THE PROJECT WOULD NEVER RECEIVE FEDERAL FUNDING. THE DECEMBER MEETING WAS CONDUCTED IN THE BELIEF THAT MEDIA COVERAGE AND PUBLIC ATTENDANCE WOULD PROVIDE SUFFICIENT BACKGROUND FOR THE PROJECT SO THAT WHEN THE COMMUNITY WORK GROUP WAS FORMED, ONLY A FEW INDIVIDUALS WOULD LACK THE NECESSARY INFORMATION TO COMMENT CONSTRUCTIVELY ON THE OUF'S REPORT. DWP ACKNOWLEDGES, HOWEVER, THAT THIS DECISION CREATED PROBLEMS AND THAT AN EARLIER COMMITMENT TO THE FORMATION OF THE WORK GROUP COULD HAVE BEEN PREFERRED.

62. ONE COMMENTER ASKED IF FUTURE COMMUNITY WORK GROUP MEMBERS WILL RECEIVE THE OUF'S AND BE ALLOWED TO COMMENT ON IT, DESPITE THE FACT THAT THE WORK GROUP WILL NOT BE FORMED UNTIL AFTER THE PUBLIC COMMENT PERIOD ENDS.

DWP RESPONSE:

THE AGENCIES BELIEVE THAT POTENTIAL WORK GROUP MEMBERS AND THE COMMUNITY HAVE HAD SUFFICIENT TIME TO COMMENT ON THE OUF'S, AS THE DWP HAS MADE THE OUF'S AVAILABLE IN MANY PUBLIC INFORMATION REPOSITORIES, AND SENT 90 COPIES OF THE STUDY AND 450 LETTERS TO THE PUBLIC, ASKING IF THEY WOULD LIKE TO COMMENT ON THE STUDY.

63. CBE PROPOSED THAT EPA AND DWP SERIOUSLY CONSIDER, AS A NEXT STEP IN THE REMEDIATION PROCESS, THE TREATMENT OF ALL GROUND WATER USED BY DWP IN THE GAC LIQUID PHASE TREATMENT.

DWP RESPONSE:

BOTH THE EPA AND DWP RECOGNIZE THE POTENTIAL THAT GAC TREATMENT HAS AS A PREFERRED TREATMENT PROCESS FOR A FINAL SOLUTION TO THE BASIN-WIDE GROUND-WATER CONTAMINATION PROBLEM. A FEASIBILITY STUDY, TO BE CONDUCTED BY EPA, WILL INCLUDE THIS ALTERNATIVE IN THE EVALUATION PROCESS.

64. FHCA STATED THAT, BECAUSE THE OUF'S IS SIMILAR TO AN ENVIRONMENTAL IMPACT STUDY (EIS), THE FEDERATION BELIEVES IT WOULD BE POSSIBLE TO COMBINE FUTURE OUF'S WITH THE REQUIREMENTS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA), AND ISSUE A SIMULTANEOUS EIR UNDER SECTIONS 15165 OR 15166 AND 15170 OF CEQA.

DWP RESPONSE:

EPA AND DWP CONCUR WITH THESE SUGGESTIONS. EPA'S SUPERFUND PROCESS WAS DEVELOPED TO BE SUBSTANTIALLY EQUIVALENT TO EIR REQUIREMENTS UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA). OPPORTUNITIES FOR PUBLIC INPUT AND REVIEW OF THE DECISION ARE EQUIVALENT TO THOSE REQUIRED UNDER NEPA. THE STATE OF CALIFORNIA IS IN THE PROCESS OF MAKING A SIMILAR DETERMINATION FOR CONSISTENCY WITH CEQA.

65. A MEMBER OF THE SIERRA CLUB ASKED WHY THE COMMUNITY WORK GROUP NOMINATION LETTERS WERE NOT ISSUED UNTIL NOVEMBER 17, 1986, WHEN THE MEMBERS WERE TO HAVE BEEN APPOINTED BY NOVEMBER 15, 1986. THE COMMENTER FURTHER ASKED WHETHER THE PUBLIC COMMENT PERIOD COULD BE EXTENDED BY THREE WEEKS TO DECEMBER 30, 1986, TO ALLOW WORK GROUP MEMBERS TO SUBMIT THEIR COMMENTS.

DWP RESPONSE:

THE SCREENING AND SCOPING COMMITTEE NOMINATED THE WORK GROUP MEMBERS, BUT THE NOMINATIONS WERE DELAYED. ALTHOUGH THE COMMENT PERIOD WAS NOT FORMALLY EXTENDED, ATTENDEES AT THE PUBLIC MEETING HELD ON THE DRAFT OUF'S WERE ENCOURAGED TO SUBMIT COMMENTS; ALL OF THESE COMMENTS HAVE BEEN CONSIDERED. DWP MADE EVERY EFFORT TO CONTACT EACH COMMUNITY WORK GROUP MEMBER DURING THE COMMENT PERIOD, AND WILL WORK WITH THE MEMBERS TO GET THEIR INPUT ON THE OUF'S.

66. A REPRESENTATIVE OF CBE NOTED THAT THE SECOND PARAGRAPH OF PAGE 12 OF THE OUF'S STATES THAT DWP APPLIED FOR OUF'S FUNDING FOR THE NORTH HOLLYWOOD PROJECT. ON PAGE 13, FIRST PARAGRAPH, IT IS IMPLIED THAT EPA PROPOSED THE OUF'S MECHANISM. THE COMMENTER ASKED WHICH STATEMENT IS

CORRECT.

DWP RESPONSE:

THE STATEMENT ON PAGE 13 IS CORRECT. PAGE 12 SHOULD HAVE REFERRED TO THE OUF'S AS A "FAST-TRACK RI/FS."

F. HEALTH ISSUES

67. ONE COMMENTER ASKED WHETHER ANY OF THE CONTAMINANTS THAT WERE FOUND IN THE GROUND WATER WERE OF SUFFICIENT CONCENTRATION TO POSE A SIGNIFICANT HEALTH THREAT.

DWP RESPONSE:

THE ESTIMATED MAXIMUM CONCENTRATION LEVEL IN THE GROUND WATER IS ON THE ORDER OF 215 PPB OF TCE. THE PROPOSED TREATMENT SYSTEM IS BEING DESIGNED TO TREAT 650 PPB, SO THERE WILL BE NO DIFFICULTY IN REMOVING THE TCE. THE SAME IS TRUE FOR PCE. THERE ARE NO OTHER CHEMICALS OF SIGNIFICANCE IN THIS CONTEXT. IN ADDITION, DWP IS ABLE TO CONTROL THE QUALITY OF WATER RECEIVED AT THE CUSTOMER'S TAP BY BLENDING WATER FROM DIFFERENT SOURCES, SO THE WATER ALWAYS MEETS RELEVANT HEALTH STANDARDS.

68. CSDW AND CBE BELIEVE THAT THE PROPOSED MCLS ARE TOO HIGH, BECAUSE THE ONLY EXPOSURE PATHWAY CONSIDERED BY EPA IN SETTING THE MCL WAS THROUGH DRINKING CONTAMINATED WATER, AND SEVERAL RECENT STUDIES INDICATE THAT EXPOSURE THROUGH INHALATION AND SKIN ABSORPTION CAN RESULT IN SIGNIFICANT HEALTH EFFECTS. FOR THIS REASON, THE REMEDIAL TREATMENT SHOULD RESULT IN WATER AT RMCLS TO BE MOST PROTECTIVE OF PUBLIC HEALTH.

DWP RESPONSE:

IT IS IMPOSSIBLE TO TREAT THE GROUND WATERS TO MCLGS (RMCLS) UTILIZING ANY CURRENT TECHNOLOGY. MCLS WERE ADOPTED AS THE NEXT BEST CRITERION. MCLS ARE THE ENFORCEABLE STANDARD AND IT IS EPA'S POLICY TO MEET MCLS.

69. CBE NOTED THAT THE SECOND PARAGRAPH ON PAGE 28 OF THE OUF'S CONTAINS A DISCUSSION OF HEALTH RISKS AND TREATMENT ALTERNATIVES THAT IS INAPPROPRIATELY PLACED AND SHOULD BE REMOVED.

DWP RESPONSE:

THE PARAGRAPH STATES THAT HUMANS WILL CONTINUE TO BE EXPOSED TO GROUND-WATER CONTAMINANTS IN ONE FORM OR ANOTHER; THE HEALTH RISK IS NOT DISCUSSED.

70. CBE NOTED THAT THE SECOND PARAGRAPH OF PAGE 50 OF THE OUF'S CONTAINS "EDITORIALIZING," WHICH CBE BELIEVES IS INAPPROPRIATE. CBE FURTHER STATED THAT SCIENTIFIC EVIDENCE, NOT JUST PUBLIC OPINION, SUPPORT THE THEORY THAT ANY CONCENTRATION OF A PROBABLE CARCINOGEN CONTAINS A FINITE AND SIGNIFICANT CANCER RISK. CBE BELIEVES THE STATEMENTS SHOULD BE CORRECTED.

DWP RESPONSE:

COMMENT ACKNOWLEDGED; THE PARAGRAPH ON PAGE 50 WILL BE DELETED.

71. CBE BELIEVES THAT THE ASSUMPTION INCLUDED ON PAGE 111 OF THE OUF'S THAT THERE IS NO DIFFERENCE IN POTENTIAL HEALTH IMPACT THROUGH INGESTION OF CONTAMINANTS OR OTHER PATHWAYS IS UNSUPPORTED AND SHOULD BE DOCUMENTED OR REMOVED.

DWP RESPONSE:

THE ASSUMPTION WAS MADE TO AVOID AN ELABORATION OF PUBLIC HEALTH IMPACTS FOR ALL CONCEIVABLE PATHWAYS; SUCH AN ELABORATION WOULD BE BEYOND THE SCOPE OF THE REPORT. IN ADDITION, THERE IS NO DEFINITE SCIENTIFIC EVIDENCE THAT CONTRASTS THE HEALTH RISKS OF EXPOSURE THROUGH SKIN OR LUNG ABSORPTION AND ABSORPTION THROUGH THE STOMACH LINING.

72. CBE ASKED WHY THE OUF'S STATES THAT THE CANCER RISK DUE TO TCE INGESTION/INHALATION AT MINUTE LEVELS IS INSIGNIFICANT, DESPITE THE FACT THAT TCE IS CONSIDERED A PROBABLE HUMAN CARCINOGEN BY

EPA AND ITS MCL GOAL IS ZERO. CBE FURTHER NOTES THAT THE TERMS "MINUTE" AND "INSIGNIFICANT" ARE UNDEFINED. THE COMMENTER BELIEVES THIS STATEMENT CONTRADICTS EPA'S CURRENT EVALUATION OF THE HEALTH RISK ASSOCIATED WITH TCE AND THAT THE STATEMENT SHOULD BE ELIMINATED.

DWP RESPONSE:

THE OUF'S REPORT DOES NOT STATE THAT TRACE QUANTITIES OF TCE ARE INSIGNIFICANT WITH RESPECT TO HUMAN EXPOSURE AND HEALTH RISK. IT STATES THAT CURRENT SCIENTIFIC EVIDENCE SUGGESTS THAT IT IS NOT SIGNIFICANT. THIS STATEMENT IS ADDED FOR OBJECTIVITY; INDEED, THE TOP OF PAGE 113 REBUTS THIS VIEW AND SUPPORTS THE RATIONALE FOR THE MCLG APPROACH. DWP ACKNOWLEDGES THAT EPA ENFORCES THE "PROBABLE HUMAN CARCINOGEN" DEFINITION FOR TCE AND FEDERAL FUNDING IS CONTINGENT IN PART ON THIS RECOGNITION.

73. CBE NOTED THAT THE STATEMENT ON PAGE 114 OF THE OUF'S, THAT THE IMPACT OF TRANSPORTATION AND DISPOSAL OR REGENERATION OF SPENT CARBON FROM GAC TREATMENT WOULD BE MUCH MORE PRONOUNCED THAN THE IMPACT OF EMISSIONS AT THE TREATMENT PLANT, IS "UNSUPPORTED SPECULATION" AND SHOULD BE ELIMINATED.

DWP RESPONSE:

THE STATEMENT IS SUPPORTED BY THE FACT THAT LIQUID-PHASE GAC FACILITY OPERATION WOULD RESULT IN LITTLE PUBLIC HEALTH THREAT TO THE IMMEDIATE COMMUNITY, WHEREAS SPENT CARBON REMOVAL/DISPOSAL/REGENERATION REPRESENTS AN EXPOSURE HAZARD SINCE THE CARBON MUST BE MOVED FROM CONTAINER TO CONTAINER AND THE OPPORTUNITY FOR CONTAMINANT RELEASE IS SIGNIFICANTLY INCREASED.

74. CBE NOTED THAT PAGE 114 OF THE OUF'S CONTAINS A DISCUSSION OF LIABILITY ISSUES SURROUNDING THE USE OF GAC WITHOUT DISCUSSING THIS ISSUE FOR THE OTHER TREATMENT ALTERNATIVES. THE COMMENTER BELIEVES THE DISCUSSION OF LIABILITY SHOULD BE ELIMINATED.

DWP RESPONSE:

COMMENT NOTED; THE SECTION WILL BE DELETED AND THE OUF'S AMENDED.

75. CBE ASKED WHY THE MORE RECENT STUDIES NOTED IN THE LAST PARAGRAPH ON PAGE 117 WERE NOT REFERENCED OR INCLUDED IN APPENDICES TO THE OUF'S.

DWP RESPONSE:

THESE STUDIES CONSISTED OF DWP AND CONSULTANT REEVALUATIONS OF THE RECOMMENDED PROJECT DESIGN TO INCLUDE AIR EMISSIONS CONTROL. DOCUMENTATION OF THESE EVALUATIONS WAS NOT AVAILABLE AT THE TIME OF OUF'S PREPARATION.

G. MISCELLANEOUS ISSUES

76. THE PRESIDENT OF THE UNIVERSAL CITY/NORTH HOLLYWOOD CHAMBER OF COMMERCE EXPRESSED SUPPORT FOR DWP'S EFFORTS TO RESOLVE THE WATER PROBLEMS IN THE AREA, AND URGED EPA TO HASTEN THE CLEANUP PROCESS.

DWP RESPONSE:

COMMENT ACKNOWLEDGED.

77. THE EXECUTIVE DIRECTOR OF CSDW STATED THAT SHE IS GLAD TO SEE THAT THE TENOR OF THE HEARING HAD IMPROVED FROM THE MEETING HELD IN MAY. SHE FURTHER STATED THAT IF EARLIER MEETINGS HAD BEEN CONDUCTED IN THIS FASHION, THE PROJECT MIGHT HAVE BEEN STARTED MUCH SOONER.

DWP RESPONSE:

COMMENT ACKNOWLEDGED.

78. CBE REQUESTED THAT THE SCAQMD MODIFY THE PERMIT ISSUED AUGUST 29, 1986 TO THE DWP FOR THE AERATION/GAC PROJECT. CBE STATED THAT THE PERMIT SHOULD BE MODIFIED TO ENSURE THAT THE PROJECT OPERATES AT THE VOC REMOVAL EFFICIENCY RATE OF 99 PERCENT; TO ENSURE THAT THE BEST AVAILABLE

CONTROL TECHNOLOGY (BACT) REQUIREMENTS FOR AIR EMISSIONS ARE MAINTAINED WITH THE GAC UNIT OPERATING AT THE MAXIMUM EFFICIENCY ACHIEVABLE; AND TO ASSURE THE PUBLIC THAT THE REGULATORY AGENCIES ARE OPERATING IN A CONSISTENT, LOGICAL MANNER TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT.

DWP RESPONSE:

COMMENT NOTED. THE PERMIT ISSUED BY SCAQMD IS CONSISTENT WITH BACT AND CURRENT AIR QUALITY REGULATIONS ENFORCED BY THAT AGENCY. THE PERMIT REQUIRES THAT PERIODIC EMISSION MONITORING BE CONDUCTED TO PREVENT CONTAMINANT BREAKTHROUGH.

79. A CBE REPRESENTATIVE MADE THE FOLLOWING SPECIFIC COMMENTS ON THE OUFs:

A) THE SECOND PARAGRAPH OF PAGE FIVE OF THE OUFs READS "IN CHOOSING A SITE LOCATION AND REMEDIAL ACTION FOR THIS FIRST OUFs..." CBE BELIEVES THIS IMPLIES OTHER OUFs PROJECTS ARE UNDER CONSIDERATION, AND SHOULD BE DELETED BECAUSE THIS IS NOT CURRENTLY THE CASE.

DWP RESPONSE:

THE STATED WORDING IS NOT ON PAGE 5 AND COULD NOT BE LOCATED IN THE REPORT. THIS COULD HAVE BEEN IN THE EARLIER DRAFT, BUT WAS DELETED. IT SHOULD BE NOTED THAT THERE MAY BE FUTURE OPERABLE UNITS IN THE OTHER THREE NPL AREAS.

B) THE FIRST PARAGRAPH ON PAGE 8 OF THE OUFs BEGINNING, "IN ORDER TO OBJECTIVELY EVALUATE THE RELATIVE NEEDS OF THE TWO CITIES....," IMPLIES THAT THE OUFs PROPOSAL CAN ONLY INCLUDE ACTION AT ONE SITE OR THAT ONLY ONE OUFs IS POSSIBLE. THE COMMENTER BELIEVES THAT THIS IMPLICATION IS UNTRUE AND SHOULD BE REMOVED FROM THE REPORT.

DWP RESPONSE:

DUE TO THE PHYSICAL DIFFERENCES IN THE WATER SUPPLY SYSTEMS OF THE TWO CITIES DISCUSSED, IT IS TRUE THAT ONE OPERABLE UNIT CANNOT (DIRECTLY) SERVE BOTH CITIES. THE RECOMMENDATION THAT THE OPERABLE UNIT BE CONSTRUCTED FOR THE NORTH HOLLYWOOD SITE IS BASED ON THE FACT THAT SUFFICIENT HYDROGEOLOGIC INFORMATION TO JUSTIFY SUCH AN ACTION NOW IS AVAILABLE ONLY FOR THIS SITE. THERE MAY BE FUTURE OPERABLE UNITS IN THE OTHER THREE NPL AREAS.

C) THE STATEMENT ON PAGE 10, REGARDING THE IMPLICATION THAT "HIGHLY SENSITIVE ANALYTICAL TECHNIQUES" ARE RESPONSIBLE FOR THE DISCOVERY OF GROUND-WATER CONTAMINATION, IS FALSE AND SHOULD BE REMOVED.

DWP RESPONSE:

COMMENT ACKNOWLEDGED. THE OUFs WILL BE AMENDED TO DELETE "HIGHLY SENSITIVE ANALYTICAL TECHNIQUES."

D) THE LAST PARAGRAPH ON PAGE 17 STATES THAT ONLY THE EASTERN HALF OF THE SAN FERNANDO BASIN HAS WIDESPREAD ORGANIC GROUND-WATER CONTAMINATION PROBLEMS. THE COMMENTER BELIEVES THAT STATEMENT FALSELY IMPLIES THAT THE VERDUGO NPL SITE IS IN THE SAN FERNANDO BASIN, AND THAT THE STATEMENT SHOULD BE ELIMINATED.

DWP RESPONSE:

COMMENT NOTED; THE OUFs WILL BE AMENDED TO DELETE THE STATEMENT.

E) THE DISCUSSION ON PAGE 61 OF THE EXTRACTION AND CONVEYANCE SYSTEM DOES NOT CONSIDER THE DIFFERENCE BETWEEN THE TWO ALTERNATIVES DETAILED IN APPENDIX 7. CBE BELIEVES THAT THE OUFs SHOULD STATE EXPLICITLY THAT ALTERNATIVE 2 OF APPENDIX 7 WAS CHOSEN AS THE FINAL ALTERNATIVE AT THE DECEMBER 9, 1986 PUBLIC HEARING.

DWP RESPONSE:

APPENDIX 7 DETAILS A PRELIMINARY FEASIBILITY ANALYSIS CONDUCTED TO DETERMINE IF THE GENERAL APPROACH COULD WORK. THE ACTUAL CITING OF THE EXTRACTION WELLS HAS NOT BEEN FINALIZED BY THE

DWP CONSULTANT. CONSEQUENTLY, NEITHER ALTERNATIVE WAS OFFICIALLY ADOPTED.

F) THE LAST PARAGRAPH ON PAGE 65 IS "UNSUBSTANTIATED SPECULATION," AND SHOULD EITHER BE SUPPORTED OR ELIMINATED.

DWP RESPONSE:

THERE IS A GENERAL CONSENSUS AMONG MANY NEIGHBORING WATER UTILITIES IN THE SOUTHERN CALIFORNIA AREA THAT THE COST-EFFECTIVENESS OF AERATION IS HINDERED OR COMPLETELY OVERSHADOWED BY THE DRAWBACKS OUTLINED IN THE PARAGRAPH. THESE DIFFICULTIES ARE SELF-EVIDENT AND REQUIRE NO SPECIAL DOCUMENTATION.

G) THE INFORMATION ON PAGE 110 SHOULD BE ADDED TO THE DISCUSSION OF THE AERATION ALTERNATIVE; PLACING THE INFORMATION AT THE BEGINNING OF THE SECTION GIVES THE AERATION ALTERNATIVE AN UNFAIR BIAS.

DWP RESPONSE:

BECAUSE THE AERATION PROCESS IS AN INTEGRAL PART OF TWO OF THE ALTERNATIVES EVALUATED, IT WAS FELT THE INFORMATION WAS APPROPRIATE FOR THIS SECTION.

2. COMMENTS MADE BY GOVERNMENT AGENCIES

1. THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES (DHS), TOXIC SUBSTANCES CONTROL DIVISION, BELIEVES THE METHODS OUTLINED IN THE OUF'S FOR TREATING CONTAMINATED GROUND WATER ARE ACCEPTABLE. DHS BELIEVES THAT REGENERATION OR RECYCLING OF SPENT CONTAMINATED ACTIVATED CARBON RATHER THAN LAND DISPOSAL SHOULD BE IMPLEMENTED DUE TO THE EPA LAND DISPOSAL RESTRICTIONS FOR THIS TYPE OF WASTE.

DWP RESPONSE:

DWP IS CURRENTLY INVESTIGATING CONTRACT CARBON REGENERATION AT TWO U.S. SITES. IT IS UNKNOWN AT THIS TIME (AUGUST, 1987) IF CONTRACTS CAN BE PROCURED FOR CARBON REGENERATION ON EITHER A SHORT-TERM OR LONG-TERM BASIS.

TABLE 3.1

**MEAN, LOWEST, AND HIGHEST TCE LEVELS IN
NORTH HOLLYWOOD-BURBANK AREA WELLS**

WELL NAME	NUMBER OF	MEAN TCE	LOWEST TCE	HIGHEST TCE
	SAMPLES	LEVEL	LEVEL	LEVEL
	1980-86	1980-86 (PPB TCE)	1980-86 (PPB TCE)	1980-86 (PPB TCE)
NH-2	38	4.63	0.70	11.00
NH-5	46	61.60	2.00	175.00
NH-10	14	262.57	82.00	360.00
NH-11	27	96.41	6.00	624.00
NH-13	6	86.33	7.00	315.00
NH-14A	30	22.45	2.50	62.00
NH-15	16	7.74	1.29	13.00
NH-16	10	1.06	0.10	2.10
NH-17	20	4.07	0.10	8.90
NH-18	32	3.68	0.10	7.50
NH-19	10	60.33	26.80	111.00
NH-20	33	16.71	1.30	77.00
NH-21	22	46.29	1.50	142.00
NH-22	10	0.77	0.10	2.00
NH-23	13	1.25	0.40	2.00
NH-24	59	73.97	0.50	189.90
NH-25	16	1.65	0.42	2.60
NH-26	16	1.65	0.50	2.70
NH-27	49	10.99	0.00	45.00
NH-28	13	67.95	0.90	235.00
NH-29	10	17.07	2.00	32.00
NH-30	17	0.62	0.00	2.00
NH-31	68	11.85	1.54	48.60
NH-34	13	0.83	0.00	2.00
NH-35	39	10.04	0.00	34.00
NH-36	12	0.80	0.00	2.00
NH-37	14	0.87	0.00	4.80
NH-38	39	19.24	0.00	53.00
NH-39	44	14.16	0.53	59.40
NH-40	14	16.11	0.00	91.00
NH-41	58	10.11	0.80	40.00
NH-42	43	1.64	0.00	9.50
NH-43A	22	1.61	0.10	5.40
NH-44	5	0.58	0.20	0.80
NH-45	3	0.17	0.00	0.50
WH-1	16	27.50	11.00	97.00
WH-2	30	25.51	5.00	92.00
WH-3	49	10.67	3.00	41.00
WH-4	27	5.11	0.10	11.00
WH-5	16	2.19	0.90	4.00
WH-6A	17	0.17	0.00	0.60
WH-7	9	0.79	0.17	1.60
WH-8	12	2.77	1.00	8.60
WH-9	11	1.01	0.30	1.60
WH-10	8	1.17	0.14	3.60
EW-1	11	2.21	0.10	6.30
EW-2A	41	2.27	0.10	7.40
EW-3	39	5.35	0.00	9.46
EW-4	11	0.74	0.00	3.00
EW-5	36	12.35	0.00	62.00
EW-6	8	0.46	0.00	1.80
EW-10	22	0.49	0.00	8.40
PSD-6	20	0.36	0.00	1.00

PSD-9	6	53.83	15.00	73.00
PSD-10	18	593.50	110.00	1500.00
PSD-11A	5	15.80	10.00	21.00
PSD-12	15	7.29	0.70	22.00
PSD-13A	18	2.72	0.10	12.00
PSD-14A	1	44.00	44.00	44.00
PSD-17	5	3.82	1.70	5.80
PSD-18	15	0.43	0.00	1.00

*** TOTAL ***

1347.

TABLE 5-1

COST SUMMARY OF FINAL ALTERNATIVES

	CAPITAL COST (\$)	O&M PRESENT (1) WORTH (\$)	TOTAL PRESENT (1) WORTH (\$)
EXTRACTION AND CONVEYANCE ONLY (4)	1,755,895	1,188,830	2,944,725
AERATION ALTERNATIVE (2)	277,000	419,856	696,856
GAC ALTERNATIVES (2,3)	493,000	2,745,795	3,238,795
AERATION/GAC ALTERNATIVE (2,3)	437,000	1,095,275	1,532,275

(1) PRESENT WORTH CALCULATIONS ARE BASED ON 15-YEAR ANNUALIZATION, DISCOUNTED AT 10%; ALL COSTS ARE IN 1986 DOLLARS. THE FIFTEEN YEAR TIME PERIOD, OR THE USEFUL LIFE OF THE FACILITY, WAS ESTIMATED FROM A REVIEW OF LITERATURE AVAILABLE PRIMARILY FOR FACILITIES SOMEWHAT LARGER THAN THIS ONE. SEVERAL RESEARCHERS REPORT THAT 20 YEARS MAY BE REASONABLE AND ASSUMED A LOW AMORTIZATION RETURN RATE (7.8%). AS A COMPROMISE, AN ESTIMATED LIFE OF 15 YEARS WAS USED WITH A HIGHER AMORTIZATION RATE (10%) FOR THE PROPOSED FACILITY AND THE FACILITY PRESENT WORTH WAS CALCULATED ACCORDINGLY

(2) VALUES GIVEN FOR ALTERNATIVES ARE THE HIGH-SIDE ESTIMATES

(3) COSTS FOR GAC ALTERNATIVES ASSUME VIRGIN-CARBON SUPPLY AND DISPOSAL

(4) TOTAL COST OF REMEDY IS OBTAINED BY ADDING EXTRACTION AND CONVEYANCE COST TO THE COST OF EACH ALTERNATIVE.

TABLE 8.1

COST SUMMARY OF FINAL ALTERNATIVES

	CAPITOL COST (\$)	CONTINUED OPERATIONS PRESENT WORTH (\$)	TOTAL PRESENT WORTH (\$)
AERATION ALTERNATIVE	2,032,895	1,608,686	3,641,581
GAC ALTERNATIVE	2,248,895	3,934,625	6,183,520
AERATION/GAC ALTERNATIVE	2,192,895	2,284,105	4,477,000.